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C. R. M. 31/2

FLORA MEDICA:

CONTAINING

COLOURED DELINEATIONS

OF THE VARIOUS

MEDICINAL PLANTS

ADMITTED INTO

THE LONDON, EDINBURGH AND DUBLIN PHARMACOPŒIAS;

WITH THEIR

NATURAL HISTORY, BOTANICAL DESCRIPTIONS,

MEDICAL AND CHEMICAL PROPERTIES, &c. &c.;

TOGETHER WITH

A CONCISE INTRODUCTION TO BOTANY;

A COPIOUS GLOSSARY OF

BOTANICAL TERMS;

AND A LIST OF

POISONOUS PLANTS,

&c. &c.

EDITED BY

A MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS,

AND FELLOW OF THE LINNÆAN SOCIETY;

WITH THE ASSISTANCE OF SEVERAL EMINENT BOTANISTS.

IN TWO VOLUMES.

VOL. II.

LONDON:

CALLOW AND WILSON, PRINCES STREET, SOHO.

1830.

C. R. M. 31/2

the east, we may reasonably conclude that this plant was well known to the ancients, and accordingly we find it spoken of by Dioscorides, under the names of Κικι and Κροτων, and the purgative properties of its seeds are recorded by him. Pliny, Ætius, and other ancient authors likewise make mention of it. As early as the year 1562, it was cultivated in Britain, and is now annually reared in many of the gardens in the neighbourhood of London, and in that of Dr. Saunders at Highbury, but with us it seldom rises above five or six feet high. According to Dr. Ainslie, this species of Ricinus is abundant throughout India.

The root is biennial, long, thick, whitish, and beset with many small fibres; the stem is round, thick, jointed, channelled, glaucous, of a purplish red colour towards the top, and rises to the height of six or eight feet; the leaves are large, and deeply divided into seven lobes, or pointed serrated segments, of a bluish green colour; the leaf-stalks are long, and inserted into the disc of the leaf; the flowers are male and female on the same plant, and produced in clustered terminal spikes: the male flowers occupy the lower part of the spike, and the female the upper; the male flowers consist of a calyx divided into five oval, pointed, purplish segments, enclosing numerous long stamina, which unite at the base; the female flowers consist of a calyx cut into three narrow segments, of a reddish colour; the styles are three, and forked at the apex; the capsule is a large three-celled nut, covered with tough spines, and contains three flattish oblong seeds, which are forced out on the bursting of the capsule.

There are two methods by which the oil (which is more generally used for medicinal purposes than the seeds) is obtained, namely, by expression, and by coction. The oil obtained by the former process, is known in commerce by the name of "cold-drawn," and is of a paler colour, and less disagreeable to the smell and taste than that obtained by coction, which latter sooner becomes rancid. The method of obtaining the oil by coction, as practised in the West Indies, is as follows:—"The seeds being freed from the husks or pods, which are gathered upon their turning brown, and when beginning to burst open, are first bruised in a mortar, afterwards tied up in a linen bag, and then thrown into a large pot with a sufficient quantity of water, (about eight gallons to one gallon of seeds) and boiled until the oil has risen to the surface, when it is carefully skimmed off, strained, and kept for use. Thus prepared, the oil is entirely free from acrimony, and will stay upon the stomach when other medicines are rejected." Mr. Long remarks that "the oil intended for internal use is more frequently cold-drawn, or extracted from the bruised seeds by means of a hand-press; but this oil is thought more acrimonious than what is prepared by coction."* Dr. Brown, of Jamaica, is also of this opinion, preferring the oil obtained by coction to that by expression, and attributes its greater mildness to the action of the fire. This acrimony, however, appears from later experiments to be owing to the membranes which invest the kernel. In this country, the cold-drawn oil is always preferred, for the reasons we have already stated, and bears a much higher price. The oil obtained is equal to one-fourth of the weight of the seeds employed. It is often adulterated with olive oil, linseed oil, and poppy oil: the adulteration may be detected by adding an equal quantity of alcohol, sp. gr. 820, to any given quantity of the oil; if it be pure an uniform solution will take place, which will not be the case should it be adulterated; a weaker spirit, with the addition of camphor, may likewise be employed as a test.

SENSIBLE PROPERTIES. Good expressed castor oil is nearly inodorous and tasteless, but even the best leaves a slight sensation of acrimony in the throat after it is swallowed; it is thick, viscid, transparent, and colourless, or of a very pale straw colour. The oil obtained by coction is of a deeper hue; and both kinds, when they become rancid, thicken, deepen in colour to a reddish brown, and acquire a hot, nauseous taste. It has all the chemical characters of the other expressed oils, except that it is heavier, and is very soluble in alcohol and in sulphuric ether.†

Orfila classes the fruit of the Palma Christi among the acrid vegetable poisons of his Toxicology: the seeds, he says, "produce a local irritation, and act upon the nervous system after being absorbed." His experiments, however, are by no means sufficient to establish this fact, for in all of them, except one, the œsophagus of the dogs which were the subjects of the experiments was tied, and the animals died within from twenty-four to forty-eight hours after the introduction of the seeds into the stomach. In the first experiment, where a small dog was made to swallow thirty grains of these seeds, Orfila says, that "at the end of twenty minutes he vomited without any effort some white matter, stringy and liquid, in which the ingested fruit was observed; at nine, he passed a stool, partly liquid, partly solid, and experienced no further inconvenience; in the course of the day he fed heartily." Now we would be inclined to attribute the fate of the animal that died, more to the tying of the œsophagus than to the effects of the substance introduced into the stomach; and it is much to be regretted that many of the experiments of Orfila on vegetable substances are liable to the same doubtful conclusion. Bergius relates that a robust man chewed and swallowed a seed of Palma Christi, which produced a stinging sensation of the fauces; he passed the night quietly, but the next morning had copious vomitings, and during the whole day he made alternately efforts to vomit and to go to stool, without however passing much. The fact is, that an acrid principle of a volatile nature is contained in the cotyledons of the seeds, but from which the embryon and testa are free.

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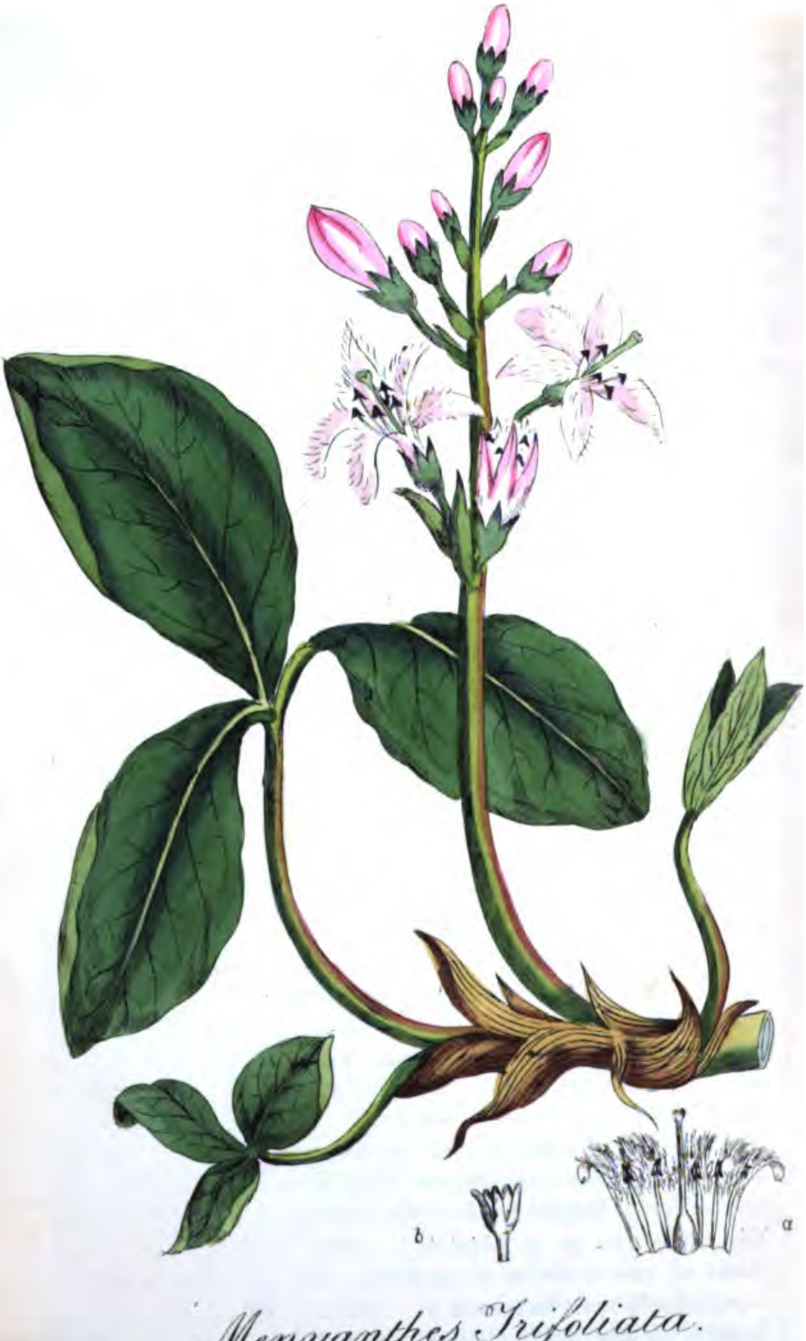
* Long's Jamaica, p. 713.

† Thomson's Materia Medica.

Medical Properties and Uses. The bark and the seeds of the Palma Christi are drastic purgatives, but these are seldom ordered; the former has been said to act as a diuretic in the West Indies, where also the leaves are sometimes used as applications to blisters. The oil is well known as a mild purgative. Dr. Cullen observes that this oil, when the stomach can be reconciled to it, is one of the most agreeable purgatives we can employ, being generally moderate in its operation, seldom occasions griping, and operates sooner after its exhibition than any other purgative. Another advantage it possesses over most other purgative medicines is, that when frequently repeated, the dose may be gradually diminished; and instances are recorded of persons, who from being of a costive habit, at first required half an ounce for a dose, but after it had been frequently repeated, two drachms were sufficient to keep the belly regular. The only inconvenience attending the use of it is, that as an oil it is nauseous to some persons, and when the dose is large it is apt to occasion sickness at the stomach, for some time after it is taken. Dr. Cullen observes, that the most effectual way to obviate this inconvenience is the addition of a little ardent spirit. An aromatic tincture may be advantageously employed for this purpose; we have generally found the Tinct. Sennæ. Comp. have the desired effect, (two or three parts of oil to one of tincture), while it aided its operation as a purgative. From the mildness with which this oil operates, it is peculiarly fitted for cases, in which the stimulant purgatives would prove hurtful; as in ileus, calculous affections, piles, and and after surgical operations in which the abdominal viscera are concerned. In the West Indies it is found to be one of the most certain remedies in colica pictonum, in which it may be advantageously joined with henbane. To women who are pregnant or in child-bed, it seems to be peculiarly adapted, and also for infants of



Menyanthes Trifoliata.

W. Spratt del. et Lith

Pub. by Callow & Wilson, Princes St.t Soho. Dec.r 1. 1828.

the tenderest age; giving speedy relief in those griping pains, to which young children are so subject. As we have been much in the habit of ordering this oil for infants, we have invariably found that besides its purgative properties, it acts upon them as an anodyne, a fact which we believe has hitherto escaped observation. In dysentery, in which castor oil is particularly indicated, the stomach will seldom retain it, but it may be efficaciously exhibited in an enema, or the seeds may be carefully separated from their shells and the inner white membrane, and formed into an emulsion, which will prove an agreeable substitute for the oil. Castor oil is an useful medicine in many febrile complaints, in bilious cholic, nephritic cases and worms, especially the tape worm, and it is particularly suited to cases of costiveness and spasmodic cholic. The dose of the oil is from ʒiv to ℥iss, and of the seeds, from ʒi to ʒij; the oil may be taken floated on a little cinnamon or peppermint water, when it will seldom be found to disagree with the stomach, or it may be diffused in these cordial waters by means of mucilage, the yolk of an egg, or almond emulsion.

Off. The Seeds, and Expressed Oil.

◆

MENYANTHES TRIFOLIATA.

*Common Buck-bean, Marsh Trefoil.**

Class PENTANDRIA.—*Order* MONOGYNIA.

Nat. Ord. PRECIÆ, *Linn.* LYSYMACHIÆ, *Juss.*

GEN. CHAR. *Calyx* 5-cleft. *Corolla* funnel-shaped, 5-lobed, hairy within. *Stigma* cloven. *Capsule* 1-celled.

SPEC. CHAR. *Leaves* ternate.

THIS is a perennial plant, and one of the most beautiful of indigenous growth; it is found in watery situations in many parts of Europe, delighting in a black, boggy, or marshy soil; and according to Professor Bigelow, it is found in similar situations in North America, with scarcely any difference of structure or appearance. It has probably derived its name of buck-bean, or more properly bog-bean, from the resemblance of its leaves to the common edible bean, though some derive it from the French; however, this is a matter of little importance.

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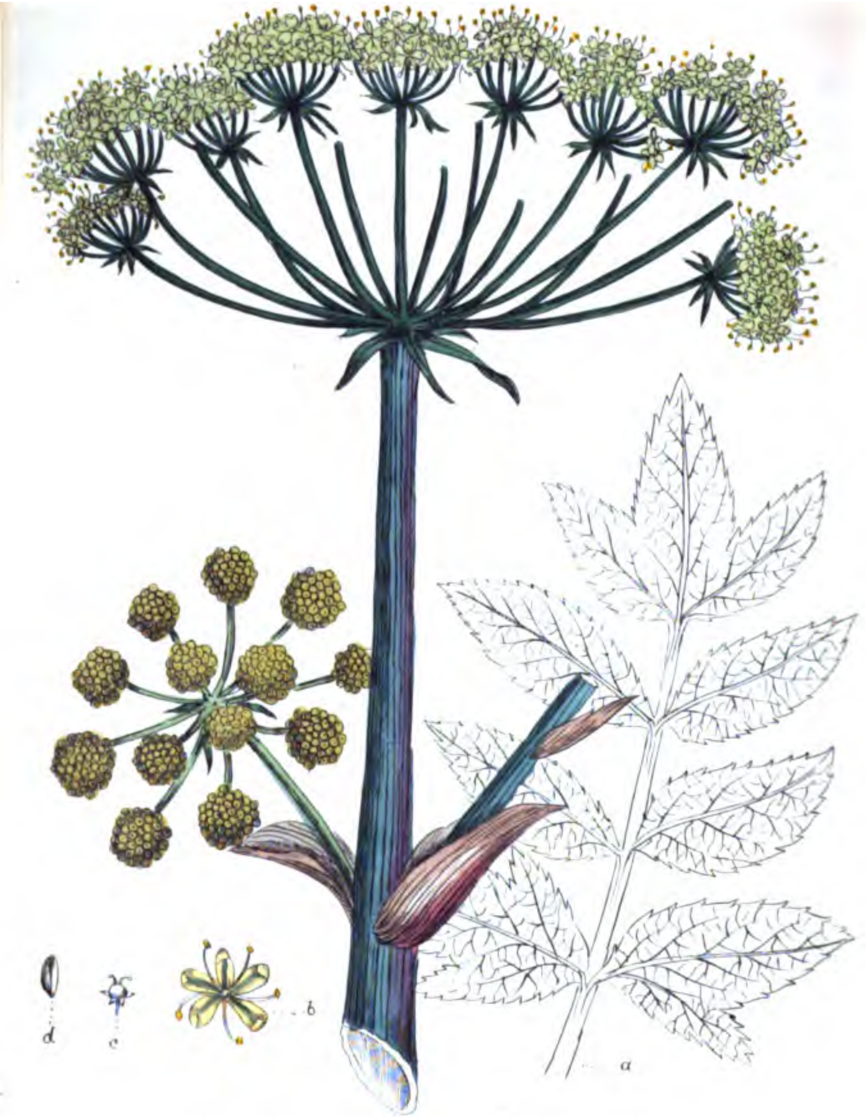
* Fig. a. The corolla spread open to shew the anthers and pistillum.

The root of buck-bean is long, round, creeping and fibrous, with perpendicular radicles, and of a black colour; the stem, which rises erect to the height of a foot, is smooth, cylindrical, spreading, branched, and clothed with sheathing foot-stalks, each of which supports a ternate leaf, composed of three obovate, smooth, bluntly-toothed leaflets, of a beautiful bright green on its upper surface, and somewhat paler beneath; the flower-stalk rises from within the sheath of a leaf, is longer than the leaves, erect, round, and smooth, and supports a loose spike of about ten flowers, accompanied with small ovate, entire bracteas; each flower has its proper pedicle or foot-stalk; the calyx is divided into five obtuse segments; the corolla is a funnel-shaped petal, divided like the calyx into five deep pointed segments, which are white, tipped with rose-colour, smooth on the outside, and clothed within with dense white shaggy fibres on their upper side; the filaments are awl-shaped, supporting erect sagittate anthers of a red colour; germen conical; stigma cloven, and notched, on a slender style, twice the length of the stamens; the capsule is ovate, succulent, one-celled, separating when ripe into two valves; seeds numerous, egg-shaped, and of a brown or yellow colour. This plant flowers in June and July.

SENSIBLE PROPERTIES. The leaves of buck-bean have a faint disagreeable smell, and every part of the plant an intensely nauseous bitter taste; the bitter principle resides chiefly in an extractive matter which is readily given out by infusion in water; the root is somewhat resinous, and the sprituous infusion of it is much stronger than the watery.

MEDICAL PROPERTIES AND USES. Buck-bean like most of the other vegetable bitters is a powerful tonic, and the powdered root given in doses of ten or fifteen grains, is found to strengthen the stomach and improve digestion; in larger doses it produces vomiting, purging, and diaphoresis; this latter quality has led to its use in rheumatism: Boerhaave says he found benefit from it in gout: he used the juice of the fresh plant mixed with whey. Dr. Cullen speaks highly of its virtues in some cutaneous diseases of the cancerous kind; he gave it in infusion. It has likewise been found serviceable in remittent and intermittent fevers, and was formerly much

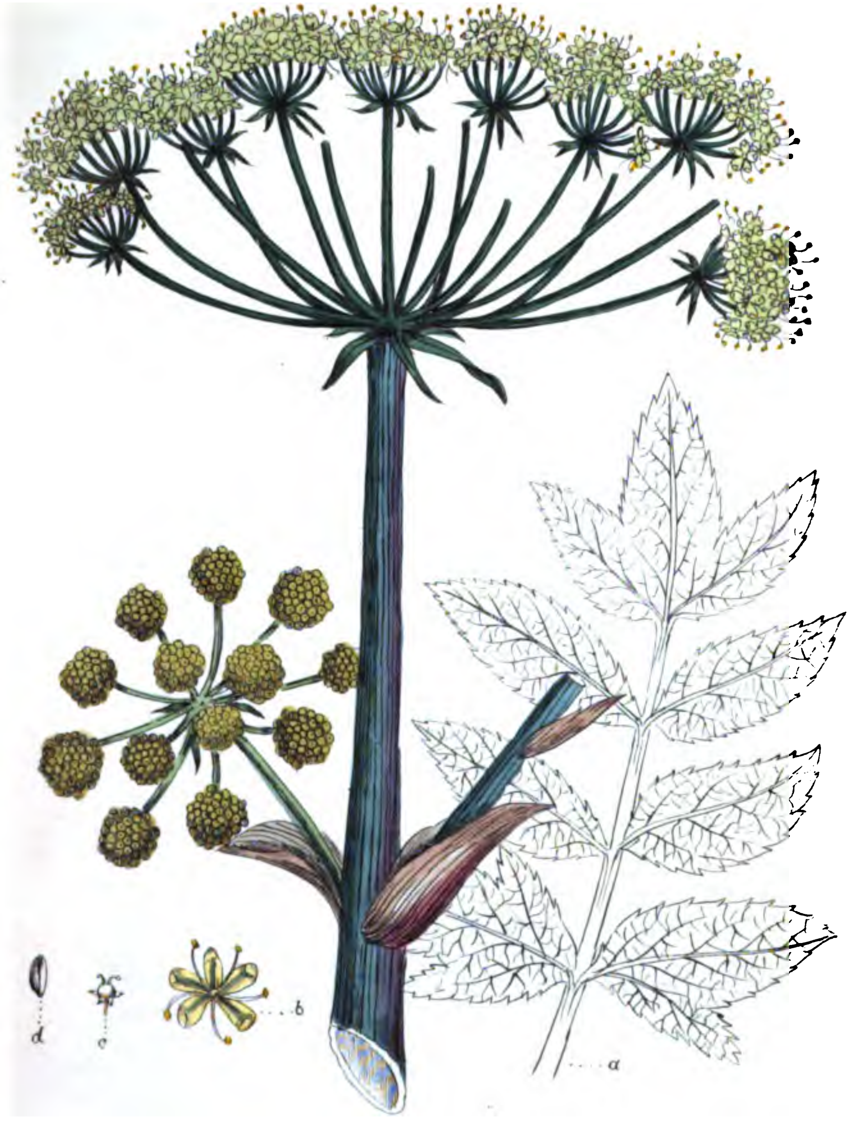


Angelica Archangelica.

Printed by Ingrey & Madeley

W. Spratt del et

Pub by Callow & Wilson Princes St. Soho.



Angelica Archangelica.

Printed by Ingrey & Madeley.
W. Spratt del et lith.

Pub by Callow & Wilson Princes St.t Soho.

growing wild in England, particularly at Broadmoor near Birmingham, and on the banks of the Thames near Woolwich; but it is uncertain whether we can lay claim to it as an indigenous plant. Joann. Jacob, *de Manliis*, a writer of the fifteenth century, is the first author who describes it, and we suppose it is indebted to him for the *heavenly* name it bears. According to Gerarde it was known and cultivated in the middle of the sixteenth century. This species of Angelica must however be considered a native of the south, as well as the north of Europe; since Spain and Bohemia are considered to produce it in the greatest perfection, and that which was brought from the former country was alone considered officinal. According to Linnæus however it flourishes best among the mountains of the north; he directs the roots to be dug, either early in the spring, or late in the autumn; and it stands to reason that at these seasons it must be more impregnated with the sap and other juices of the plant. There are five species of Angelica, one of which, the Angelica Sylvestris, is indigenous.

The root of Angelica is biennial, thick, fleshy, branched, and resinous: externally brown, white within; the stem is erect, hollow, round, smooth, furrowed, of a purplish hue, rising upwards of five feet high, and sending off many branches which terminate in globular many-rayed umbels, composed of dense, hemispherical umbellets; the leaves are numerous, petiolated, large, pinnated; the leaflets are ovate, pointed, cleft, acutely serrated, smooth, somewhat decurrent, and the terminal ones three-lobed; the foot-stalks are membranous at their base, nerved, greatly dilated, and bellying; the leaves and stalks are of a bright green colour; the involucres are deciduous, linear, few in number, and sometimes altogether wanting; the partial involucres are short, and consist of five linear, lance-shaped leaves; the calyx is five-cleft, and very minute; the corolla is small, of a greenish-white colour, and consists of five equal, lance-shaped petals, with the points turned inwards; the stamens are spreading, longer than the corolla, with roundish anthers; the germen is inferior, ovate, supporting two short reflected styles, with obtuse stigmas; the flowers are numerous, and grow in large terminal umbels; the fruit is a kind of capsule, large, elliptical, flat on one side, convex on the other, emarginate at both ends, with three acute ribs; each capsule contains a single brown, pointed seed.

Sensible Properties. Every part of the recent plant is fragrant and aromatic; the taste sweetish at first, then aromatic, warm, and slightly bitter; the dried root is corrugated, and of a greyish-brown colour externally, breaks short with a starchy fracture, and presents a firm interior, whitish, with many brown and yellowish spots; it has the same taste and smell as the recent plant, yielding these qualities to alcohol, and in some degree to boiling water. The roots of Angelica, when wounded in the spring, yield an odorous yellow juice, which slowly dessicated, proves an elegant gum-resin, rich in the qualities of the plant. For medicinal purposes the roots should be dug up in the autumn of the first year, when they are more easily preserved than if gathered in the spring; in the latter case they are liable to become mouldy, and to be preyed on by insects. They should be thoroughly dried, and kept in a well-aired dry place; and Lewis recommends the dipping them in boiling spirits, or exposing them to steam after they are dried. The leaves and seeds lose their virtues by keeping.

MEDICAL PROPERTIES AND USES. The leaves and seeds when recent, and the root, both fresh and dried, are tonic and carminative, and may be considered the most elegant aromatic of our northern climes; modern practice however has almost entirely rejected this plant. By the Laplanders and Icelanders, Angelica is much in request, both as an article of food and for medicinal purposes. The former use it for many catarrhal and pectoral affections, and an extract made from the flowers, boiled in the milk of the rein deer, is considered by them diaphoretic and tonic; the stalks roasted are used by them as an article of food, and we are told by Sir George Mackenzie, that the Icelanders eat the stems and roots of Angelica raw with butter.* In this country the tender stems are cut in May and made into an agreeable sweetmeat. By Gerarde, Angelica is extolled as a panacea for all the ills of life.

Off. The Root.

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* Travels in Iceland.

PYRUS CYDONIA.

Common Quince Tree.[*]

Class ICOSANDRIA.—*Order* PENTAGYNIA.

Nat. Ord. POMACEÆ, *Linn.* ROSACEÆ, *Juss.*

GEN. CHAR. *Calyx* monophyllous, five-cleft, persistent. *Corolla* petals 5, nearly round, concave, inserted into the calyx. *Filaments* 20, inserted into the calyx. *Germens* beneath the receptacle. *Pericarpium* an apple, five-celled.

SPEC. CHAR. *Leaves* ovate, entire. *Flowers* solitary.

THE common quince tree is a native of Austria, and has been found growing wild on the shores of the Danube. Thunberg found it growing in Japan, where it is called *umbats* ;[†] but from the writings of Pliny[‡] it appears that the Malus Cydonia, or Μηλεα *χυδωνια* of the Greeks, was originally brought from Cydon, in Crete; hence the name Cydonia. In its wild state the quince is much less luxuriant than we observe it in our British gardens, where it was first cultivated in the time of Gerarde, about the year 1597.[§]

This tree seldom rises very high, being usually very crooked and distorted: it sends off several branches, and is covered with a brown bark; the leaves are simple, roundish or oval, entire: on the upper side of a dusky green colour, on the under whitish, and stand upon short foot-stalks; the flowers are large, solitary, of a pale red or white colour, and placed close to the axillæ of the leaves; the calyx is composed of one leaf, and divided into five spreading, oval, notched segments; the corolla consists of five petals: these are large, roundish, and notched at their extremities; the filaments are about twenty, tapering, shorter than the corolla, inserted into the calyx, and furnished with simple anthers; the germen is orbicular; the

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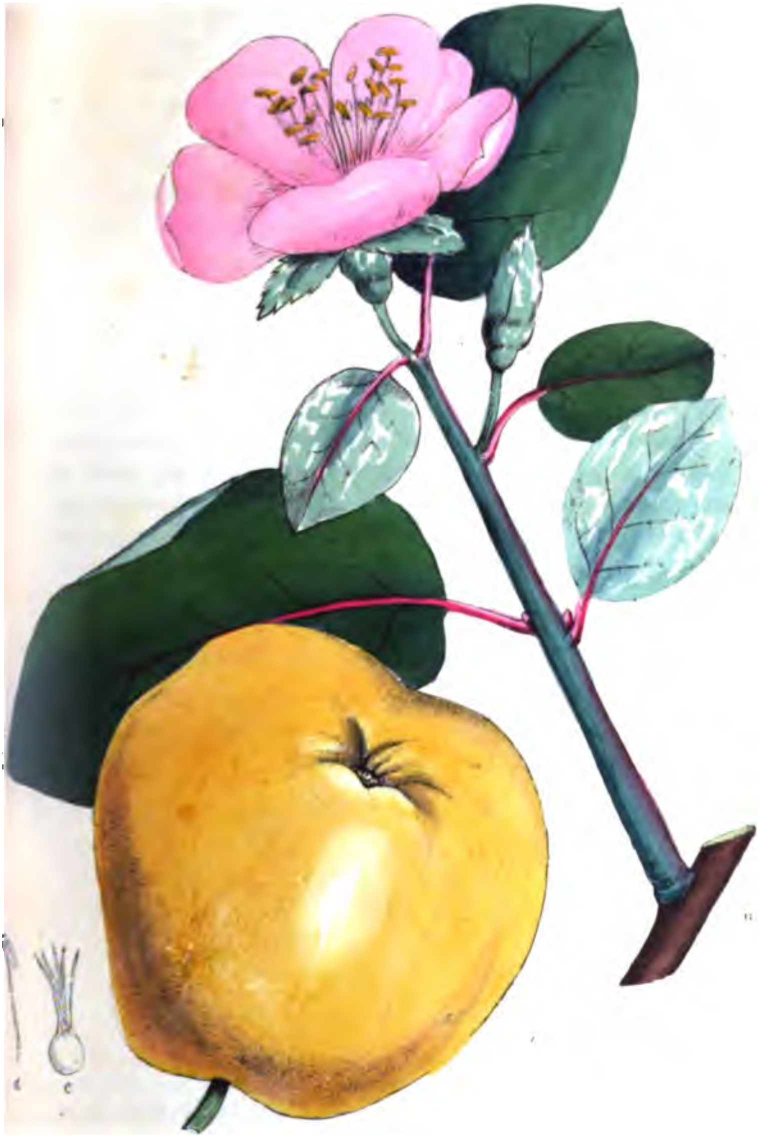
[*] Fig. *a.* represents the flower and leaves of the natural size. *b.* The fruit. *c.* The germen and styles. *d.* An anther.

[†] Flor. Japan. p. 200.

[‡] Lib. xv. cap. II.

[§] Hortus Cantabrigiensis.



Pyrus Cydonia.

W. Spratt. del et Lith

Pub. by Callow & Wilson Princes St. Soho. Jan. 1st 1824.

styles are five, slender, nearly of the length of the filaments, and supplied with simple stigmata; the fruit is of the apple kind, and divided at the centre into five membranous cells, containing the seeds, which are oblong, angular, pointed at one end, obtuse at the other; at one side compressed, on the other flat, and covered with a brownish pellicle; the form of the fruit approaches to that of the apple or pear, according to the different varieties of the tree from which it is produced; it flowers in May or June.

SENSIBLE AND MEDICAL PROPERTIES. The quince has a pleasant odour, and a very austere acid taste, partaking at the same time somewhat of the flavour of rhubarb stalk. The seeds are inodorous and nearly insipid, but when long chewed impart a slight degree of bitterness to the taste; when boiled they yield much mucus, which soon spoils; the mucilage is not altered by sulphate of iron.

MEDICAL PROPERTIES AND USES. The expressed juice, taken in small quantities, frequently repeated, is said to be cooling, restringent and stomachic,[*] and useful in nausea, vomitings, and some kind of alvine fluxes;[†] in larger quantities it is said to loosen the belly, but we believe it is much better known, and more frequently used as an ingredient in pies. The seeds readily impart their mucilaginous substance to watery liquors; an ounce will render three pints of water thick and ropy, like the white of an egg; this mucilage, however, will not supply the place of gum arabic, as it soon spoils, and is precipitated by acids. It has been recommended in apthous affections, and excoriations of the mouth and fauces.

Off.	The Seeds.
Off. Pp.	Decoct. Cydoni , L.

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[*] We are told by Dr. Ainslie, that the Persians and Arabians place the juice of the fruit, when sour, amongst their stomachics, and also the apples when fried. A decoction of the seed is prescribed by the Mahometan practitioners, as a demulcent in gonorrhœa, and tenesmus.—Vide *Materia Indica*, vol. i. p. 332.

[†] Lewis's Materia Medica, p. 267.

PASTINACA OPOPONAX.

Opoponax, or Rough Parsnip.[*]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ, *Linn.* UMBELLIFERÆ, *Juss.*

GEN. CHAR. *Fruit* elliptical, compressed, flat. *Petals* involute, entire. *Calyx* very minute. *Flowers* regular, uniform, fertile.

SPEC. CHAR. *Leaves* bipinnate. *Leaflets* unequal at the base.

THIS plant is perennial, and grows wild in the south of Europe; it is also a native of the Levant and the East Indies, from whence alone the officinal Opoponax is obtained. This species[†] of parsnip was cultivated in England in the year 1731, by Mr. P. Miller, who observes, that its "roots are large, sweet, and accounted very nourishing;" it bears the cold of our climate very well, commonly matures its seed, and its juice manifests some of those qualities which are discovered in the officinal Opoponax; but it is only in the warm regions of the East that it concretes into a gummy resinous drug; this is obtained by means of incisions made in the bottom of the stalk of the plant, from whence the juice gradually exudes, and by undergoing spontaneous concretion, assumes the appearance under which it is imported.

BOTANICAL DESCRIPTION. The root of this plant is thick, fleshy, and tapering like the garden parsnip; the stalk is strong, branched, rough towards the bottom, and rises seven or eight feet in height; the leaves are pinnated, consisting of several pairs of pinnæ, which are strong, serrated, veined, and towards the base appear unformed on the upper side; the flowers are small, of a yellowish colour, and terminate the stem and branches in flat umbels; the general and partial umbels are composed of many radii; the general and partial involucre are generally both wanting, and their absence is made by Linnæus a characteristic of the

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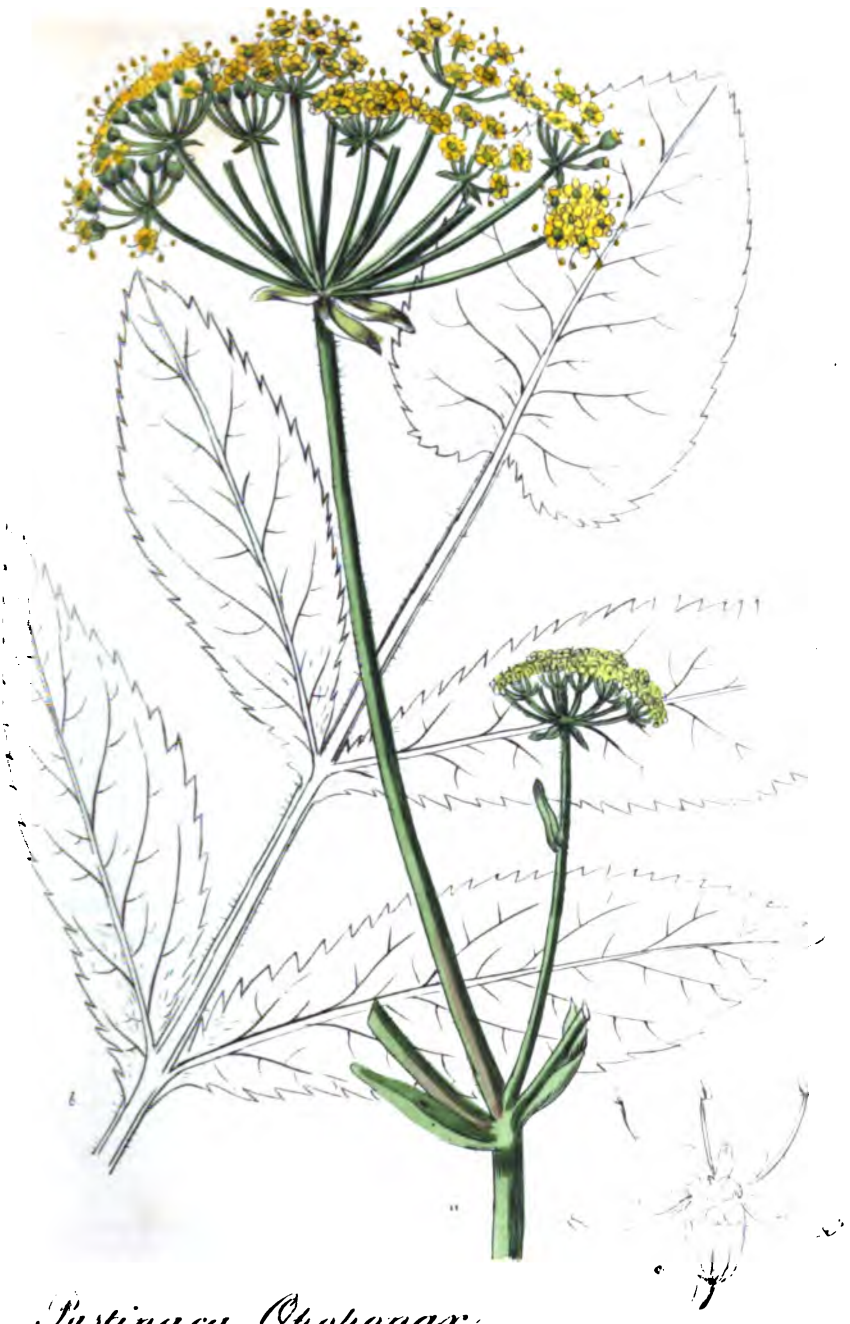
[*] Fig. *a.* A sprig of flowers. *b.* The upper part of a leaf in outline. *c.* A flower largely magnified.

[†] Οπόπαναξ, Dioscorides.



Pastinaca Opoponax.

W. Spratt del et Lith

Pub by Callow & Wilson, Princes Street Soho Jan 1st 1829

Pastinaca; all the florets are fertile, and have an uniform appearance; the petals are five, lance-shaped, and curled inwards; the five filaments are spreading, curved, longer than the petals, and furnished with roundish anthers; the germen is placed below the corolla, supporting two reflexed styles, which are supplied with blunt stigmata; the fruit is elliptical, compressed, divided into two parts, containing two flat seeds, encompassed with a narrow border: it is as we have said, a native of the South of Europe, and flowers in June and July.

SENSIBLE AND CHEMICAL PROPERTIES. The gum resin as it comes to us is sometimes in round drops or tears, but more commonly in irregular lumps, of a reddish yellow colour on the outside, with specks of white; inwardly of a paler colour, and frequently variegated with large white pieces. According to the analysis of Pelletier,* it appears to be composed of gum 33.40, resin 42., starch 4.20, extractive 1.60, essential oil 5.90, woody fibre 9.80, malic acid 2.80, wax 30, caoutchouc a trace, in one hundred parts: by distillation it yields a brown oil, acetic acid, and a bituminous oil; it has a peculiar strong odour, which it communicates by distillation both to alcohol and water; its taste is nauseous, bitter and acrid.

MEDICAL PROPERTIES AND USES. Opoponax was formerly much employed by physicians, and esteemed for its attenuating, deobstruent, and aperient virtues; it was also supposed to be emmenagogue, but as it was commonly prescribed in combination with other medicines, these properties are by no means ascertained, nor do its sensible qualities indicate it to be a medicine of much power. Dr. Cullen classes it with the antiseptics: it has commonly been given in hypochondriacal affections, visceral obstructions, menstrual suppressions, and asthma, especially when connected with a phlegmatic habit of body. It is now but rarely used.

Off. The Gum-Resin.

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* Ann. de Chim. lxix. p. 90.

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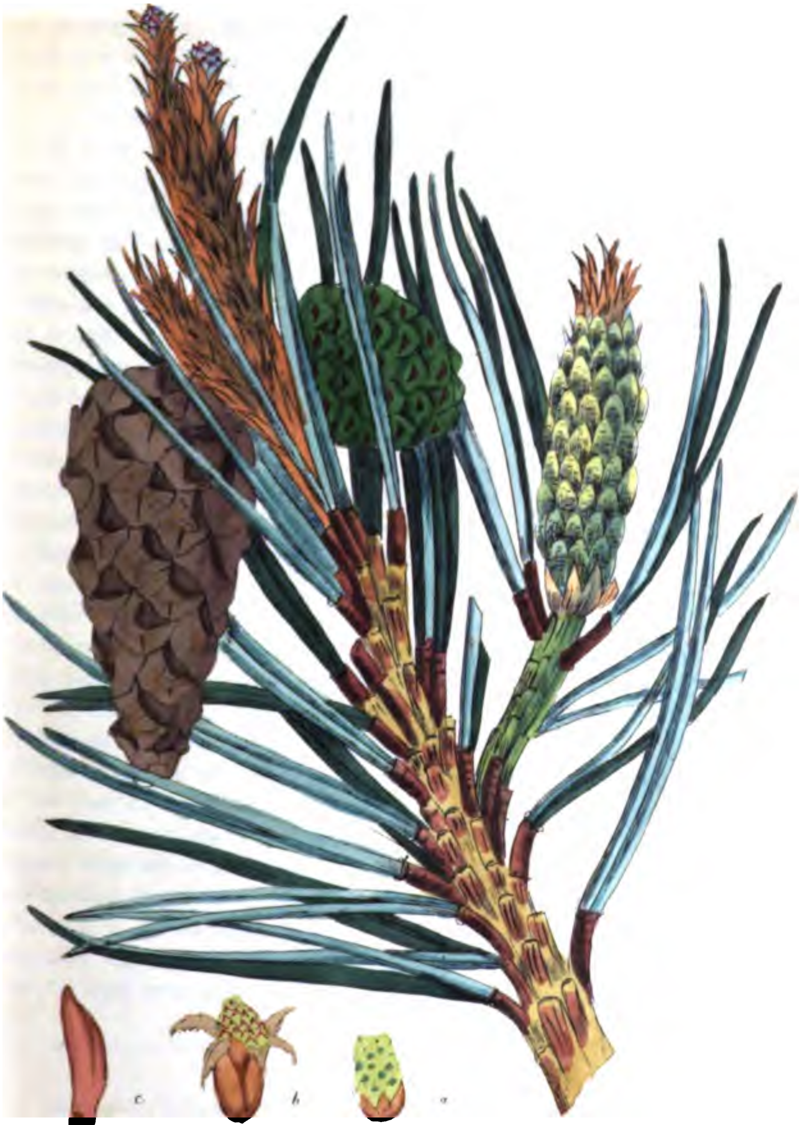

Pinus Sylvestris.

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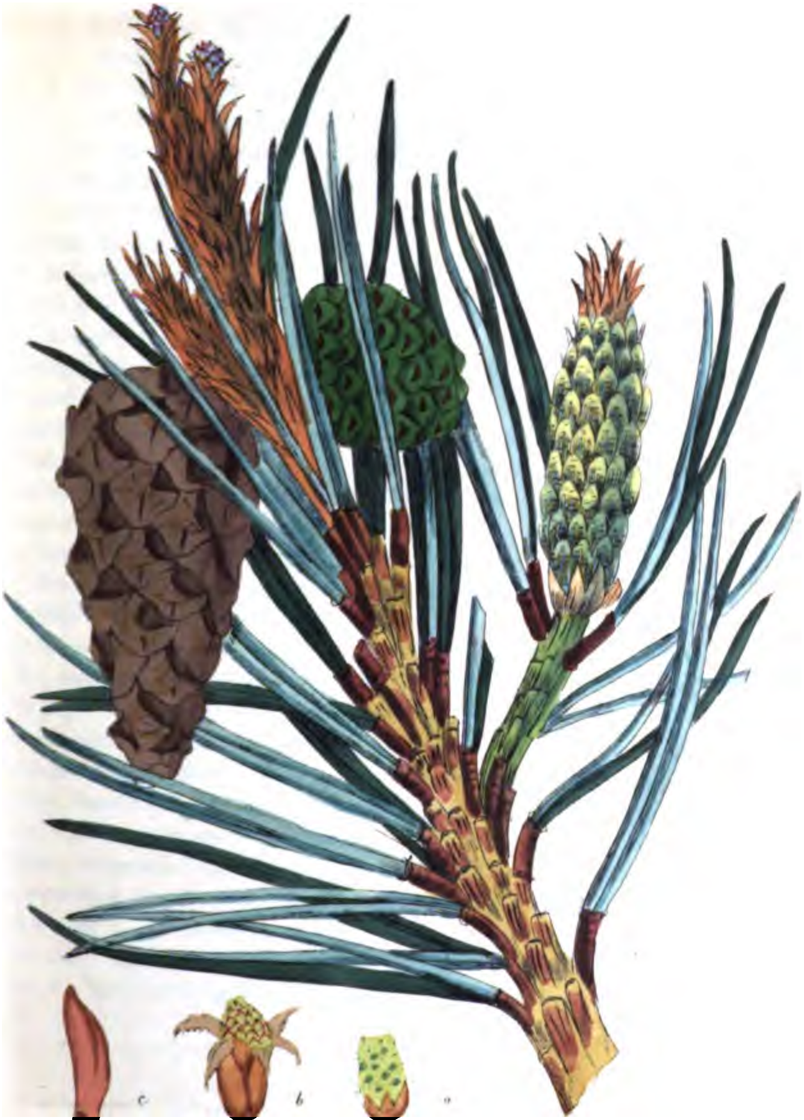

Pinus Sylvestris.

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it abounds. It is found to thrive best in a cold climate, and on arid, poor, sandy or stony soil, and hence it is very generally planted in this country on ground which would otherwise be barren and unproductive; in black, boggy or chalky ground, or near stagnant waters it does not thrive; indeed a dry soil seems essential to the growth of these trees. With respect to climate, however, it is to be observed, that the summer of these northern regions, though short, is intensely hot, from the number of hours the sun is above the horizon when it has attained a few degrees of north declination;* and we should be inclined to think that this great heat was favourable to, if not absolutely necessary for, those peculiar secretions and exudations which distinguish the genus.

This tree usually grows straight, tapering, and to a great height, and is well adapted for the masts of ships;† the branches are numerous, divaricating, and, like the stem, covered with rough bark of a reddish brown colour: the leaves, which are persistent, stand in pairs, and are united at the base with the sheath; they are two or three inches long, convex on one side, concave on the other; very narrow, linear, striated, somewhat pointed; of a deep green glaucous colour, and surround the ends of the smaller branches; the flowers are male and female on the same tree; the former stand in branches without any calyx, unless the loose scales at its base be considered as such, (it is so called by Linnæus); there is no corolla; the filaments are numerous, united at the base, forming an upright pillar, and furnished with erect anthers; the female flower consists of a calyx or common cone, which is small, composed of scales with two flowers in each; the cones are oblong, imbricated, permanent, inflexible; there is no corolla; the germens, two of which are seated at the base of each scale, corresponding to the flowers, are very small, producing each a tapering style, terminated by a simple stigma: there is no capsule, but the scales of the cone, which before impregnation stood open, close upon the seed or nut, which is supplied with a membranous wing; the flowers appear in May; the year after impregnation, the young fruit becomes lateral, stalked, and of a more oval figure; the second year it ripens into an ovate, pointed, hard, woody cone, the dry scales of which ultimately open to allow the dispersion of the winged seeds. This tree is said to live to the age of four or five hundred years: the wood, as is well known, is used for various purposes.

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* At Gottenburg, in Sweden, we have seen the mercury in the thermometer, in the month of July, higher than ever it was known to rise in the East or West Indies.—*Ed.*

† The red Norway pine, as it is called, from the Pinus Abies we imagine, is considered to make the best top-masts, from its great elasticity, bending, but very rarely breaking; for the same reason it is well adapted for rafters for flooring.

Every part of the Pinus Sylvestris, as well as all the other species of pine, and particularly those which we shall have occasion to notice, abounds with a resinous juice, which, in the different species, possesses the same general qualities, but presenting some varieties, according to the nature of the species, which we shall notice under the proper head. The productions of the genus Pinus have been arranged into—1st. Those which exude spontaneously, as the *Thus* of the London, or the *Resina Alba* of the Dublin Pharmacopœia, from the Pinus Sylvestris and Pinus Abies; 2d. Those procured by wounding the tree, as turpentine from almost all the species; 3d. Those procured by decoction and distillation, as the *Spiritus Terebinthinæ*, and *Resina Flava*; and 4th. Those which are procured by the action of fire, as *Pix Liquida*, &c.

TEREBINTHINA VULGARIS, or COMMON TURPENTINE. Genuine turpentine, properly speaking, is the production of the Pistacia Terebinthus of Linnæus, a native of the eastern parts of Europe, and belonging to the class Diœcia, order Pentandria; but the term has been generalised, and applied to that peculiar liquid resin yielded by the genus Pinus, possessing the same general properties with the true Terebinthus, though modified by the particular species of tree from which it is obtained. This has given rise to the various appellations of Chian turpentine, Venice turpentine, common turpentine, &c.

Common turpentine is obtained from the Pinus Sylvestris in the following manner:—a series of wounds are made through the bark, into the wood, beginning at the bottom of the tree, and gradually ascending until a stripe of the bark about nine feet long is removed, which is generally effected in about four years; the juice which flows from these wounds during summer is collected in a small cavity formed in the earth underneath the incisions; from this it is occasionally removed into proper reservoirs for purification. The same operation is repeated from time to time on different sides of the tree, allowing the former wounds to close up; a tree worked in this way will furnish turpentine for nearly a century; trees with the thickest bark, and those which are most exposed to the sun yield the greatest quantity. As the trees exude very little juice during cold weather, the incisions are only made between the months of May and September; in winter the old incisions become covered with a soft resinous crust, called by the French *barras*, when impure and mixed with dust, sand, &c.; and *gallipot* when collected with more care; this is scraped off and is used in the making of flambeaux, but the greater part of it is purified and converted into yellow resin. All these different products of the Pinus Sylvestris are purified by liquefaction and filtration; they consist almost entirely of essential oil and resin, differing only in the proportions, the turpentine containing the largest proportion of oil, and the gallipot of resin; indeed the quantity of essential oil in the latter is so small that it is never subjected to distillation; it is purified by melting it over a gentle fire and filtrating; in this form it is often sold for Burgundy pitch, as is likewise a simple mixture of gallipot and barras made without heat; but the mass resulting from this combination soon becomes friable, and has neither the unctuosity, viscidity, tenacity, nor smell, which distinguish the real kind. If boiling water be added to the melted gallipot after it is strained, but while yet fluid, and the two agitated together, a yellow resin is obtained, which, from still containing some essential oil, is preferred to the resin prepared by a similar process from the residuum after the distillation of turpentine.

SENSIBLE AND CHEMICAL PROPERTIES OF COMMON TURPENTINE AND THE RESINS. The juice of pines in general has an austere, astringent, warm and pungent taste, great viscosity, is more or less fluid according to the species, with different degrees of transparency, and is of a whitish or yellowish colour, with a penetrating smell. It is entirely soluble in alcohol, combines with fixed oils, and imparts its flavour to water but is not soluble in it; by a moderate heat it is decomposed, yielding a highly penetrating essential oil, of which we shall hereafter speak, and leaving the liquor impregnated with an acid, the succinic; a bitter resinous substance remaining behind. Turpentine therefore consists of an essential oil, resin, and succinic acid, and the purest turpentine is that which yields the largest quantity of the first of these substances; turpentine is exceedingly inflammable, burning with a large white flame and much smoke. Common turpentine is more coarse and dense than the other kinds, it is about the consistence of honey, and of a light brown or dirty yellow colour, its taste is very acrid, hot and nauseous, and smell more penetrating and disagreeable than the purer turpentines; for this reason the use of it is chiefly confined to farriers for their plasters and ointments. It is likewise extensively used for the distillation of the essential oil. According to modern chemistry the resins stand in the same relation to the volatile oils that wax does to the fixed oils; wax being a fixed oil, and resin a volatile oil saturated with oxygen. Although the term liquid resin has been applied to the fluid turpentine, it is more properly to be understood to mean the hard substance; in which sense we now speak of it, observing by the way, that all terebinthinous exudations, whether fluid or solid, may be considered as resins prior to the separation of the essential oil. When volatile oils are exposed for a sufficient time to the action of the atmosphere they absorb oxygen, acquire consistency, and are converted into resins. These resins for the most part have a sub-acid taste, resembling that of the essential oils; they are devoid of smell, are non-conductors of electricity, specific gravity varying, but all of them heavier than water, in which fluid they are insoluble under any temperature; they are soluble in alcohol, and some of them in the fixed oils; they are also for the most part soluble in the volatile oils, and in many of the acids; the sulphuric and nitric acids convert them into a kind of tannin. According to Mr. Hatchett they are readily dissolved by alkaline leys, and the solution has the properties of soap. When exposed to a gentle heat they soften, and finally melt, and if the heat be increased they take fire, burning with a strong yellow flame, and emitting a considerable volume of smoke. When volatile oil is exposed to the air it is converted, partly into a resin, and partly into an acid which crystallizes; this acid is generally the camphoric or the benzoic, sometimes the succinic.

MEDICAL PROPERTIES AND USES OF COMMON TURPENTINE. As the medical properties of the turpentines are all nearly similar, differing only in degree, we shall notice this part of our subject when we come to treat of the purer kinds which are administered internally.

THUS. In warm seasons or climates the Pinus Sylvestris yields a resinous juice, which exudes spontaneously, and to which the name of *Thus*, or common frankincense, was formerly given; but as this substance is more properly the produce of the Pinus Abies, we shall treat of it under that head.

RESINA FLAVA. YELLOW RESIN. BAKED TURPENTINE. We have already said that turpentine is composed of an essential oil, a resin, and a small quantity of succinic or other acid. The residuum of the process for obtaining the essential oil gets different names, according to the manner in which it is treated: if the distillation be performed without addition, and continued until the whole of the essential oil is driven off, there will appear some traces of empyreuma in the residuum, which then obtains the name of rosin, or colophony; this latter was originally the name of a liquid resin brought from Colophon in Greece, and is mentioned by Galen and Dioscorides;* this substance is familiar to all our readers as fiddler's rosin. If while the mass of turpentine used in the distillation be still fluid a quantity of water be added and thoroughly blended with the resin by agitation, the under part of the cake resembles colophony, the action of the fire having entirely expelled the water and volatile oil and rendered it slightly empyreumatic and transparent, while the upper part from retaining some water is opaque and yellow, this is called yellow resin. The medical properties of these two substances are essentially the same, and their composition will be readily understood from what we have already said.

MEDICAL PROPERTIES AND USES. These resins are never used internally, but from their adhesive qualities they are an indispensable ingredient in the composition of many plasters, while the resin itself, as a calefacient, aids the effects of many of them. Colophony is likewise much used in the arts, entering in the composition of several varnishes, being dissolved in alcohol, in which it is perfectly soluble.

RESINA EMPYREUMATICA PINI *vel* PIX LIQUIDA.

TAR is a well known substance in commerce; it is obtained from the Pinus Sylvestris and all the other species which yield turpentine, by the following process. A conical hole is dug in the earth, communicating at the bottom with a reservoir; billets of the wood are then placed, so as not only to fill the cavity, but to form a conical pile over it,† which is covered with turf, to prevent the flames from breaking out, by which the tar would be consumed. The pile being kindled at the top, the admission of air is so regulated, that it burns from above downwards, with a slow and smothered combustion. The wood itself is reduced to charcoal, and the smoke and vapours formed are obliged to descend into the excavation in the ground, where they are condensed, and pass along with the matter liquefied into the receiver: this is the tar of commerce, the greater part of which we import from the Baltic.

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* It also entered into the composition of the discutient plaster of Celsus, and is recommended by Scribonius as a purgative.

† We are informed by Theophrastus (lib. ix. cap. 3) who gives a circumstantial account of the manner practised by the Greeks for obtaining tar, (Πιττα, Πίσσα υγρα, Κωνος.) that these piles were sometimes one hundred and eighty cubits in circumference, and from sixty to one hundred in height.

SENSIBLE AND CHEMICAL PROPERTIES OF TAR. Tar differs from the native resinous juice of the tree, in containing the saline and mucilaginous parts as well as the extractive and the oily, and in having acquired an empyreumatic quality from the action of fire; it may therefore be considered a mixture of resin, empyreumatic oil, charcoal, and acetous acid. This acid is not only soluble in water, but also renders the empyreumatic oil more soluble. Tar has a hot, pungent, disagreeable taste, and a penetrating, overpowering smell, particularly when heated; its consistence depends a good deal upon the temperature of the weather: in an ordinary temperature it is somewhat thicker than common turpentine, but becomes much more fluid under a hot sun; its colour in a mass is of a dark brown, approaching to black, but when spread thin upon any surface it is of a reddish brown, with something of a shining golden hue; by exposure to the air, and as it dries upon the surface, it becomes nearly black, but not permanently so, recovering its bright hue if sufficiently heated to drop off; it is adhesive and clammy to the touch, and very inflammable.

MEDICAL PROPERTIES AND USES. Tar was at one time so much in vogue, that Bishop Berkeley thought it worthy of a treatise, in which he extolled and recommended the use of tar water; and by many of the physicians of his time extraordinary virtues were ascribed to it. According to Dr. Cullen, it strengthens the tone of the stomach, excites appetite, promotes digestion, and relieves dyspeptic symptoms. At the present day it is but little used, not perhaps from being altogether devoid of the qualities which have been ascribed to it, but because there are other less nauseous remedies which can be resorted to. Dr. Crichton and Mr. Ward, of Maidenhead, have recommended tar vapour in phthisis pulmonalis, and asthma; and we have ourselves seen two or three instances of consumptive patients being much benefited by remaining a few hours daily in a plantation of pines while the sun was shining, and when the surrounding air must have been in some degree impregnated with the vapours of the exuding resins; how far regular exercise, pure air, and the imagination may have tended to produce the effect we shall not pretend to decide. Tar water has also been considered as a heating diuretic and sudorific, and has been sometimes recommended in diseases of the urinary organs. As an external application tar has been much used in the cure of tinea capitis, and other cutaneous diseases of man and animals, and we believe with good success.*

Off. Pp. Aqua Picis Liquidæ, D.
Unguentum Picis Liquidæ, L. D. E.

Pix. Common pitch, Βοσκας of the Greeks, though not officinal, requires to be noticed here. If the boiling of tar be continued for a sufficient length of time, it is deprived of its volatile ingredients, and converted into pitch ; but the most general and economical way of obtaining it, is by boiling together the necessary proportions of tar and coarse hard resin ; by varying these proportions you may obtain the pitch in any degree of hardness and dryness you require.

Pitch is much less pungent and less bitter than common tar ; it is more adhesive, but has not the same overpowering and disagreeable smell. It is sometimes used as an ingredient in plasters, and may be considered a digestive.

Extractum Pini. Extract of pine, or essence of spruce is another well known produce of the Pinus Sylvestris : it is prepared by decoction from the twigs. This essence fermented with molasses and water forms the wholesome beverage known by the name of spruce beer.

Besides these resinous products, necessity has discovered that the bark of this tree may be made subservient to the nourishment of man. Linnæus informs that the Laplanders make a kind of bread from the inner bark, or alburnum : for this purpose the tallest trees are selected, and the external bark, which is dry and scaly, being carefully removed, the inner white and succulent matter is collected and dried. When required for use, it is slowly baked on the fire, by which means it is rendered hard and porous ; it is then pounded into flour, kneaded with water, and made into cakes which are baked. This bread is eaten by the Laplanders during a great part of the year.

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* The most general use to which tar is applied, is in the manufacture of ropes, and for other purposes connected with the equipment of shipping.

PINUS LARIX.

White Larch Tree.[*]

For *Class, Order,* GEN. CHAR. &c.
see PINUS SYLVESTRIS.

SPEC. CHAR. *Leaves* tufted, deciduous. *Cones* ovate, oblong; the margins of their scales reflexed, jagged. *Scales* of the *Female* catkin fiddle-shaped, prominent in the full-grown cone.

THE long, slender, pendent branches, and the whitish bark readily distinguish the larch from the preceding species of pine. It is a native of the higher regions of Italy, Switzerland and Germany, and has also been found in Siberia. It has been cultivated in England since the year 1629, and is now extensively planted in Scotland ; as an ornamental tree it is likewise to be found in most shrubberies throughout Europe.

The larch, like most of the pine tribe, is of quick growth, and rises to the height of fifty or sixty feet; the branches are wide-spreading, and drooping at their extremities, being too slender to support the weight of their leaves; the leaves are deciduous, slender, soft, of a bright green colour, and placed in tufts or bundles; the male and female flowers are placed separately on the same branch ; the cones are small, erect, ovate, about an inch long, of a reddish brown colour when ripe, and covered with obtuse scales, from which the bracteal leaves appear.

The Terebinthina Veneta (or more properly Larigna, as we are supplied with it, not from the Venetian States, but from New England[†]) issues spontaneously through the bark of this tree; but is more commonly obtained by wounding the bark at the distance of about two feet from the ground, and inserting into the wound a small canula, through which the turpentine flows into proper vessels placed for its reception.

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[*] Fig. *b*. represents the cone or strobile when ripe. *a.* and *c.* Scales of a female catkin.

[†] It is not certain that the New England turpentine is the produce of the Pinus Larix: the genuine liquid resin of this tree is best obtained from France and Germany.

CHEMICAL AND SENSIBLE PROPERTIES OF VENICE TURPENTINE. The different turpentines reserved for consideration are —1st. The Venice turpentine, from the Pinus Larix; 2d. The Balsamum Canadense, or Canada Balsum, which may be considered one of the purest turpentines, from the Pinus Balsamea, or Balm of Gilead fir; 3d. The Terebinthina Argentoratensis, or Strasburgh turpentine, from the Pinus Picea; and 4th. the Chian, or Cyprus turpentine, from the Pistacia Terebinthus (see Pinus Amentacea). Of the common turpentine we have already spoken, and under that head we noticed the different products which are common to turpentines in general, except the volatile oil, with which we shall conclude our history of the Genus Pinus. The peculiarities of each kind of the above turpentines, will be noticed under their respective species, as also the products which more particularly belong to each. Venice turpentine is usually thinner than any of the other sorts; of a clear whitish or pale yellowish colour, a hot, pungent, bitterish, disagreeable taste, and a strong smell, without any thing of the aromatic flavour of the Chian kind; in its other properties it differs little from these we shall hereafter notice.

MEDICAL PROPERTIES AND USES OF TURPENTINE. We learn from the writings of Dioscorides, Pliny, and others, that the ancients were well acquainted with the different products of the pine tribe, and that turpentine, as well as the more solid exudations, was extensively used by them, in the healing art; they distinguished these products into dry and liquid; "Summæ species duæ," says Pliny, "sicca et liquida. Sicca é pinu et picea fit; liquida à terebintho, larice, lentisco, cupresso." We can readily comprehend that the "liquida" of Pliny refers to the liquid resin called turpentine, but it is not so easy to determine which of the solid products of these trees, or of the two species mentioned by him, he alludes to by the distinction of "sicca." Aretæus prescribed turpentine, in combination with rue and nitre, formed into a linctus with honey, for melancholia, lethargy, pleurisy, &c.; and also administered it in the form of enema, for cephalea and volvulus, and as an external application in phrenitis and tetanus; it was likewise one of the remedies resorted to by the Egyptians, as we learn from Prosper Alpinus. In the present day turpentines are but rarely administered internally, as the essential oil is justly preferred to the crude substance. Taken internally they are active stimulants, open the bowels, and increase the secretion of urine, to which they give a violet smell; they are very quickly taken up by the absorbents, and an external application produces the same effects on the urine as if the substance had been taken internally; indeed, it may be observed, that turpentine has more tendency to act on the urinary organs than any other medicine with which we are acquainted. In gleets and fluor albus turpentine has been much prescribed, and with good success. We are told by Cullen that a terebinthinous enema is the most certain laxative in colic; when carried into the blood-vessels, turpentine stimulates the whole system, and hence its use in rheumatism and paralysis. The usual dose of turpentine is from a scruple to half a drachm; it is generally given in the form of a linctus, made with twice its weight of honey; it may also be given in a liquid form, by triturating it with mucilage or yolk of egg, and then adding the necessary quantity of water; half an ounce triturated with yolk of egg, may be given in an enema. In all cases however accompanied by inflammation, turpentine ought to be abstained from. Venice turpentine is very generally substituted in medicine for the Chian; the former is thought to be more powerfully diuretic and detergent; the latter more corroborant. Riverius considers it safer than most other irritating diuretics, and according to Cullen, its effects in obstinate constipation of the bowels, when administered in an enema, are more certain and durable than those of saline purgatives.

Another produce of the Pinus Larix which requires to be noticed is a glutinous sweet substance, to which the name of Manna Larigna, manna of the larch, or Briançon manna,* has been given, and to which we have already alluded when treating of the Fraxinus Ornus. This substance exudes spontaneously from the tree, about the months of June and July, and appears in the form of small white drops upon the branches; these branches are lopped off early in the morning, as the sun would otherwise dissipate the manna, which is afterwards collected from them at leisure; it is locally administered as a laxative, but does not seem to possess much activity; besides the saccharine matter it contains turpentine.

The *Gummi Orenburgense* of the Russians, is another remarkable product of the Pinus Larix. This gum has much resemblance to gum arabic, and in Russia is frequently substituted for it; it is entirely soluble in water, is very glutinous, and of a reddish colour. It is chiefly obtained in the Ural Larch forests; and according to Professor Pallas it exudes from the medullary part of the trees, during their combustion. It is used by the Cossacks as an article of food, and is also considered by them as an antiscorbutic.

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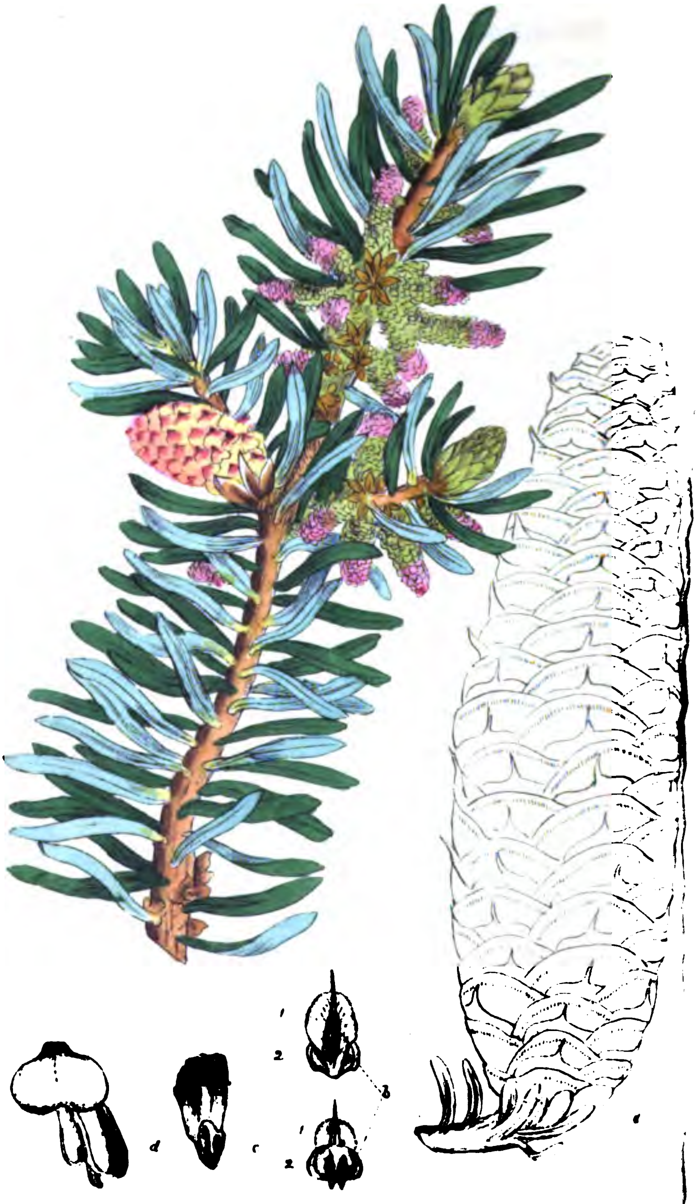
* So called from being chiefly collected by the peasants in the neighbourhood of Briançon.



Pinus Balsamea

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PINUS BALSAMEA.

Balm of Gilead Fir[*].

For *Class*, *Order*, GEN. CHAR. &c.
see PINUS SYLVESTRIS.

SPEC. CHAR. *Leaves* solitary, flat, imperfectly 2-ranked. *Cones* cylindrical, erect, with short-pointed scales. *Crest* of the *Anthers* pointless.

THIS tree is a native of the colder climates of North America, particularly Canada, Nova Scotia, and New England; like the other species of fir, it delights in high, cold, dry situations, and though it has long been cultivated in England, either the climate or soil is not congenial to it, for it does not appear to thrive, and seldom survives many years.

The Pinus Balsamea is an elegant tree; it seldom exceeds the height of forty feet; the trunk is straight, from twelve to fifteen inches in diameter, covered with a smooth whitish grey bark; the leaves are placed in double rows, are short, linear, but broader for their length than either the Pinus Larix or Sylvestris, and less pointed: of a bright green colour on the upper surface, and marked with glaucous lines underneath; the male catkins are ovate; the crest of anthers kidney-shaped, pointless, or furnished with short spines; the female catkins are furnished with numerous ovate, notched bracteas; the cones stand erect on the branches, and when ripe (which is in October) are of a beautiful deep glossy purple colour, and exude a great quantity of transparent resin.

Canada Balsam, as it is improperly called, is the produce of this tree: as we have already said it is the purest kind of turpentine, but the term balsam is now confined to those resinous substances which contain benzoic acid.

PROPERTIES AND USES. The Canadian turpentine yielded by this tree, is considered the best, and next to it the Chian; both these species are more transparent, and have a more agreeable flavour than the other kinds. Canada turpentine is a transparent whitish liquid resin; it has a strong pungent taste and a fragrant odour, very much resembling the balm of Gilead,[*] with which it appears to agree in many of its qualities, and for which it is often substituted by dealers. As a medicine it has not been much used in England; it is the opinion however of some practitioners who have tried it, that it possesses nearly all the virtues of the Balsamum Copaibae, and might be substituted for it; if this be true it would be an advantageous substitution, as the latter balsam is much more expensive.

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[*] Fig. *a.* represents a ripe cone. *b.* Scales of a female catkin, 1 its bracteolæ. *c.* A seed. *d.* The anthers.

PINUS ABIES.

Norway Spruce Fir.[†]

For *Class, Order,* GEN. CHAR. &c.
see PINUS SYLVESTRIS.

SPEC, CHAR. *Leaves* solitary, quadrangular. *Cones* cylindrical; their scales rhomboid, flattened, waved and notched.

THIS beautiful and valuable species of pine is not only one of the loftiest of the genus, but one of the loftiest of European trees; frequently attaining the height of one hundred and fifty feet, growing in a pyramidal form, its lower branches widely extending; the trunk is straight, from three to five feet in diameter, and covered with a reddish scaly bark; the leaves, which are thickly placed upon the branches, are slightly imbricated, about an inch long, linear, bluntish, often curved, of a dusky green colour, and shining on the upper surface; the male catkins are ovate, purplish, and placed in the axle of the leaves; the female catkins are mostly terminal, of a rich crimson colour; are sessile, oblong, and stand erect; the strobiles or cones are terminal, and always pendent, nearly cylindrical, of a greenish colour before they are ripe, but changing to purple as they ripen; the scales (which are placed in spinal rows) are rigid, rhomboid, waved at the edges, and terminate in a notched point.

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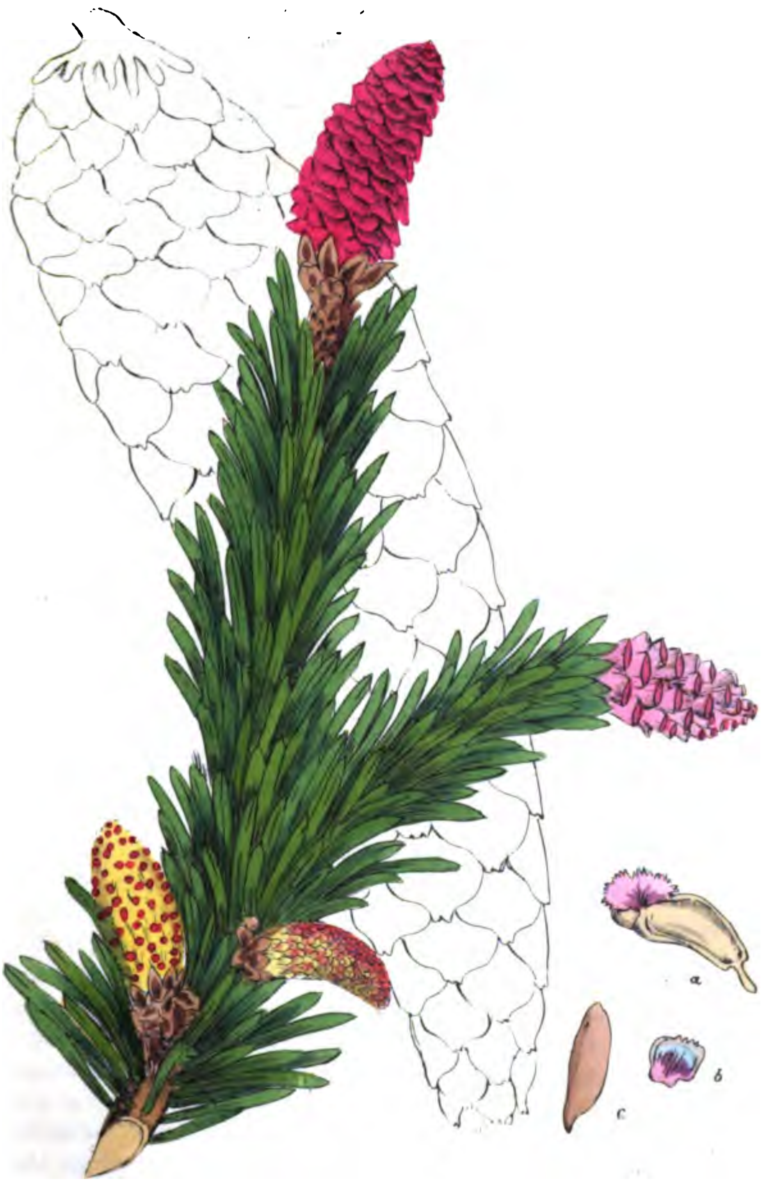
[*] Genuine balm of Gilead is produced by the Amyris Gileadensis.

[†] Fig. *a.* represents the anthers. *b.* Scale of a female catkin. *c.* A seed.



Pinus Abies.

W Spratt del et lith

Pub by Callow & Wilson, Princes St. Soho Feb.y 1st 1829

It is a native of the mountainous regions of the north of Europe, Asia, and probably America ; in Norway it abounds, and vast quantities of the timber are exported to this and other more southern states, for the purposes of building and the masting of ships, for both of which it is preferred to all other of the pine tribe: good timber of this species is also grown in England and Scotland, and is found to be very strong, elastic, and durable.

THUS. RESINA ALBA. Common frankincense, or the white resin of the Dublin College, is a resinous juice which exudes spontaneously in warm weather from the pores of this tree, and concretes into distinct drops or tears by exposure to the air. It is a solid brittle resin, and comes to us in tears or masses of a brownish or yellowish colour on the outside, internally whitish, or variegated with whitish specks; taste somewhat acrid and bitter, but not disagreeable; it possesses but little smell.

MEDICAL PROPERTIES AND USES. Common frankincense seems to possess the same properties with many of the other resins, and is consequently an ingredient in some plasters, which are now however but seldom resorted to.

PIX BURGUNDICA. Burgundy pitch is ascribed by Tingry to the Pinus Picea, but it is more generally referred to the present species. It is a resinous juice, less fluid, and less transparent than the proper turpentines, and soon concretes into a close soft substance by exposure to the air. Like other terebinthinous exudations, it is only to be obtained in the summer months; for this purpose incisions are made in the bark of the tree, without wounding the wood; the juice then exudes from between the bark and the wood, and remains attached to the wound in large tears. This substance is collected from time to time as it accumulates, and is purified by melting it in boilers with a sufficient quantity of water, and straining the fluid through cloths, subjected if necessary to the action of a press, into the casks in which it is to remain for exportation. Burgundy pitch is likewise artificially made by melting together the fluid turpentine and some of the solid resins, and bringing the compound to a proper consistence. The Burgundy pitch of commerce is mostly brought to us from Saxony.

MEDICAL PROPERTIES AND USES. Burgundy pitch as an external application is considered rubefacient and stimulant; hence it is sometimes ordered where it is proper to induce local inflammation. It is also officinally employed in the composition of some plasters.

PINUS PICEA.

*Silver Fir.**

For *Class, Order,* GEN. CHAR. &c.
See PINUS SYLVESTRIS.

SPEC. CHAR. *Leaves* solitary, emarginate and pectinate. *Scales* very obtuse and closely pressed together.

THIS tree seldom grows to the height of the Pinus Sylvestris, its bark is close, and that of the branches is of a silvery hue; the leaves are solitary, short, rigid, and on the under side marked with two longitudinal whitish lines; on the upper branches they are obtusely pointed, and grow so close as almost to cover the bark; on the lower branches they are emarginated, and stand in a pinnated manner; the cones are upright, large, and furnished with scales, which when young have a membranous appendage rising from the upper margin, but when fully formed the scales are very obtuse, and closely embrace each other.

The silver fir is a native of Switzerland and Germany, and according to the Hortus Kewensis was first cultivated in the Chelsea Garden in 1739; but as thirty-six fine trees of this species are mentioned by Plot and Ray as growing near Newport in Shropshire, it must have been cultivated in the country at a much earlier period.

There appears to be considerable difference of opinion respecting the particular species of turpentine yielded by this tree. Lewis and several other writers on the Materia Medica refer the common turpentine to the Pinus Sylvestris, and the Terebinthina Argentoratensis, or Strasburgh turpentine to the silver fir tree; while Murray, who follows Du Hamel and Haller, ascribes the Terebinthina Vulgaris to the tree here figured. Certain it is, that this tree pours out the turpentine so freely that it is seldom necessary to make incisions; and it is by no means improbable that the difference between what is called the common and the Strasburgh kinds may depend upon being the product obtained either by spontaneous exudation, or by

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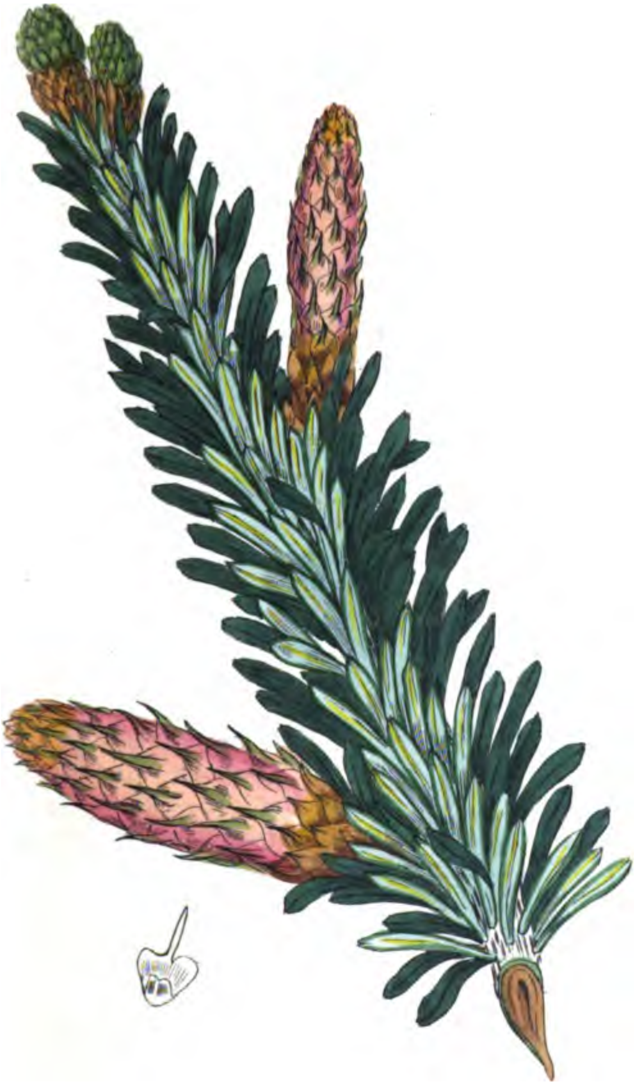
* Fig. *a.* represents the scale of a young cone.



Pinus Picea.

W. Spratt del et lith.

Pub. by Callow & Wilson Princes St.t Soho. Feb.y 1st 1829

wounding the tree, and that the Pinus Picea may thus yield either one or the other. At all events it is a matter of very little importance, as far as medical science is concerned, to what particular species of pine we are indebted for any of the turpentines.

Strasburgh turpentine is purer and less nauseous than the common turpentine, and is considered more corroborant than the Venice; in every other respect it differs but little from the Venice or Chian kinds.

Essential Oil of Turpentine. We have already incidentally spoken of this valuable remedy, and we shall now communicate such further particulars as have come under our own personal observation, or within the scope of our reading. This essential oil is obtained by the common process of distillation: to five pounds of common turpentine four pints of water are added, and the mixture is distilled in a copper alembic. A *rectified oil* of turpentine is likewise obtained by distilling one pound of the essential oil with four pints of water; but the oil is said not to have its specific gravity, smell, taste or medical qualities much improved by this process; which is also both tedious and dangerous, from the very great inflammability of the vapour which is apt to escape if the lutings are not of the very best description.

Chemical and Sensible Properties. Essential oil of turpentine is a transparent, limpid, volatile fluid; it is lighter than water; has a hot pungent taste, and a penetrating smell; it is highly inflammable, and possesses all the other properties of essential oils; it is very difficult of solution in alcohol, although turpentine itself is easily dissolved in it.

Medical Properties and Uses. The spirit, or essential oil of turpentine has been long in use in these countries as a remedy, though it is only within the last few years that its virtues have particularly engaged the attention of the faculty, and we by no means think that they are yet properly understood or sufficiently estimated. It is however a growing favourite, and we expect to find it ere long, hold a high place in the catalogue of medicines. Pitcairn, Cheyne, Home and Cullen have recommended its use in chronic rheumatism, and from its action being particularly directed to the urinary organs it has long been prescribed for gleet. But we are indebted to Dr. Copland for bringing this valuable substance into more general notice. This gentleman not only prescribed it for the cure of sciatica and lumbago, but also, with the best success, in chronic dysentery and diarrhœa, passive hæmorrhages, and hœmorrhoids; likewise for epilepsy, tetanus, and several other spasmodic diseases. But it is in arresting the progress of puerperal fever that this medicine has proved truly valuable. We believe Dr. Brennan of Dublin was the first practitioner who employed it in this disease, and much about the same time it was resorted to by Dr. Copland, who had the superintendance of the Queen's Lying-in Hospital; the former gentleman likewise extended its use to other cases of fever, and we believe frequently with the most decided success. A case recently came under our own observation which deserves to be recorded. A gentleman was attacked over night with all the worst symptoms of a malignant typhus fever, which was epidemic at the time; his house-keeper procured for him half an ounce of the spirits of turpentine, which she persuaded him to take, drinking copiously of barley water after the dose; it produced plentiful evacuations both by stool and urine, and before morning all the feverish symptoms had left him; but inflammation of the bladder and urethra was the consequence of the dose he had taken, and for several days he passed bloody urine, and was considered in a very dangerous way. It appears to us that the oil of turpentine should be given either in small, or in large doses; for the former, from ʒss to ʒi, and for the latter, from ℥i to ℥ii; the medium dose is likely to be attended with the danger we have spoken of. Dr. Murray says that by giving it in large quantities it operates on the bowels as a cathartic, by which its absorption and action on the urinary organs are obviated, and the danger of stranguary avoided; we think therefore that whenever recourse is had to it in cases of fever, it should be given in large doses: from one to two ounces has been the usual dose in cases of puerperal fever, and it has also been given in this quantity in cases of chronic rheumatism; in the smaller doses it acts chiefly as a diuretic. Dr. Fenwick has recommended this preparation of turpentine as a powerful anthelmintic in cases of tænia;* by giving it in large doses, and repeating it if necessary, purging is produced, and the worm is expelled lifeless: it has also been resorted to for the expulsion of other species of worms, and frequently with success. In obstinate constipation of the bowels, in apoplexy, and in acute hydrocephalus of infants, we have seen decided advantage from the use of a turpentine enema; about half an ounce of the essential oil being added to the common cathartic enema. On the whole, as an internal remedy, we are glad to see practitioners incline to give this peculiar substance a fair trial, and we would strongly recommend it to their notice in all cases of fever. Externally applied, oil of turpentine acts as a rubefacient ; applied to the skin of many animals, it produces blisters, and occasions them much pain. As a remedy for extensive burns and scalds it is now generally resorted to, having been first recommended by Dr. Kentish of Newcastle. Dr. Kentish directs the injured part to be first bathed with oil of turpentine, alcohol, or tincture of camphor, heated by standing in boiling water; he then covers it with rags dipped in a liniment composed of oil of turpentine and yellow resin melted together ; these are to be renewed once a day, taking care to remove only one piece of cloth at a time, that the injured surface may be exposed to the air as little as possible ; at the second dressing the parts are directed to be washed with spirits of wine. As the inflammation subsides, less stimulating applications are to be used, as proof spirit, or tincture of opium ; and when the secretion of pus commences, the parts are to be covered with powdered chalk, or the ceratum plumbi acetatis, or ceratum lapidis calaminaris. During the progress of the cure, and after the inflammatory action has subsided, æther, alcohol, and other stimulants are to be given in conjunction with opium. By this mode of treatment, Dr. Kentish has cured some very extensive burns, and we can bear full testimony to the efficacy of the practice. In slight burns the immediate application of the liniment described above will generally be found sufficient to effect a cure.

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* See Medico-Chirurgical Transactions, vol. ii.

Oil of turpentine is also extensively used in the arts, as in the making of varnishes, by painters in oil, &c.

ANTHEMIS PYRETHRUM.

Spanish Chamomile, or Pellitory of Spain.[*]

Class SYNGENESIA.—*Order* POLYGAMIA SUPERFLUA.

Nat. Ord. COMPOSITÆ DISCOIDEÆ, *Linn.* CORYMBIFERÆ, *Juss.*

GEN. CHAR. *Receptacle* chaffy. *Seed Down* none, or a membranaceous margin. *Calyx* hemispherical, nearly equal. *Florets* of the ray more than five.

SPEC. CHAR. *Stems* simple, 1-flowered, decumbent. *Leaves* bipinnated, segments linear, pointed.

THIS species of Anthemis is a perennial plant, flowering in June and July; it is a native of the Levant, the South of Europe, Syria, Barbary, and Arabia. It was first cultivated in England about the year 1570, by Lobel,[†] and now adorns many of our botanic gardens; but it does not ripen its seeds here, unless the season proves very hot and dry.[‡]

The root is long, (from twelve to eighteen inches) tapering, externally of a pale whitish brown, and sends off many small fibres; from the root rises several stems to the height of about ten or twelve inches, (each bearing one flower,) round, simple and trailing; the leaves are doubly pinnated, the segments of which are linear, narrow, and of a pale green colour; the flowers are large, the florets of the disc yellow, those of the radius white on the upper side, and purple on the under side; the different florets resemble those of the Anthemis Nobilis, which has been already described.

SENSIBLE AND CHEMICAL PROPERTIES. The dried roots of Pyrethrum have little or no smell, but a very hot pungent taste when chewed, excite a glowing heat in the mouth, and a copious discharge of saliva. In their recent state it is said they act like the bark of Mezereon, and excite inflammation if applied to the skin.[§] This

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[*] Fig. *a*. a floret of the radius. *b*. A floret of the disc. *c*. The stamens. *d*. The style.

[†] Hortus Kewensis.

[‡] Miller's Dictionary.

[§] Bergius.

acrid quality appears to reside in a fixed oil or resin, soluble in alcohol. According to M. Gautier, the oil is deposited in vesicles in the bark, is solid, of a reddish colour, and strong odour.[*] The watery infusion is yellowish, red, and clear; its taste is weak, scarcely acrid. With sulphate of iron it becomes opaline, and a precipitate falls.[†] Both the alcoholic and ethereal tinctures are acrid, hot and pungent. The dried root breaks "with a short resinous fracture, the transverse section presenting a thick brown bark, studded with black shining points, and a pale yellow, radiated inside."

MEDICAL PROPERTIES AND USES. From the aromatic and stimulating qualities of Pyrethrum, there can be no doubt but that it might be found an efficacious remedy, and equally fitted for an internal medicine, as many others of this class now constantly prescribed.[‡] Its use however has long been confined to that of a masticatory, to stimulate the salivary glands, and excite an increased flow of saliva; by which inflammatory affections of the neighbouring parts are often relieved,[§] as in tooth-ache, and rheumatic affections of the face; it is also recommended in lethargic complaints and paralysis of the tongue, chronic ophthalmia, head-ache, and apoplexy. As a topical application, a decoction, prepared by boiling half an ounce of the root in one pint of water until the liquor is reduced one half, forms an useful remedy in relaxations of the uvula. We are told by Celsus, that Pyrethrum was employed as a resolvent, and that it formed one of the ingredients contained in the famous cataplasm made use of for maturing pus.[‖]

Off. The Root.

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[*] Vide Ann. de Chim. et Phys. vol. viii. p. 101.

[†] Gray's Elements.

[‡] By the Persians and Moguls it is considered discutient and attenuant; and the Vytians prescribe an infusion of it with other drugs as a cordial and stimulant, in lethargic cases, palsy, and typhus fever.—*Ainslie's Materia Indica*, vol. i. p. 300, 301.

[§] Its use in this way is mentioned by Serenus Lamonicus. "Purgatur cerebrum mansa radice pyrethri."

[‖] Vide Celsus, lib. v. cap. xvii.

LAURUS CINNAMOMUM.

*The Cinnamon Tree.**

Class ENNEANDRIA.—*Order* MONOGYNIA.

Nat. Ord. OLERACEÆ, *Linn.* LAURI, *Juss.*

GEN. CHAR. *Calyx* none. *Corolla* calycine, six-parted. *Nectary* of three two-bristled glands, surrounding the germen. *Filaments* interior, glanduliferous. *Drupe* one-seeded.

SPEC. CHAR. *Leaves* three-nerved, ovate, oblong, the nerves vanishing towards the point.

OF the Laurel tribe no less than five are found in the Materia Medica of our Colleges, and almost all of them differing materially in their medical properties. The cinnamon laurel, which we are about to notice, is a native of the Island of Ceylon, where it is found in great abundance, particularly near Columbo. It also grows plentifully in Malabar, Cochin China, Sumatra, and the eastern islands in the Indian Ocean. Cinnamon, Κιννάμωμον of Dioscorides, is called by the Malays Kayu-manis, or as it is sometimes pronounced Kaina-manis; and this Mr. Marshal supposes to have been the origin of the Greek name; which however Scagliger, and we think with more probability, derives from the Hebrew word *Kinamon*. Before the fifteenth century, all the cinnamon used in Europe was imported by the Arabs, and passed through the hands of the Venetians, who at that time engrossed all the commerce of the East: but after the discovery of the passage round the Cape of Good Hope by the Portuguese, this latter nation became the sole importers, and so continued until 1645, when many of their Indian factories were seized by the Dutch, who now divided the trade with them. This jealous people exerted their usual vigilance to prevent the introduc-

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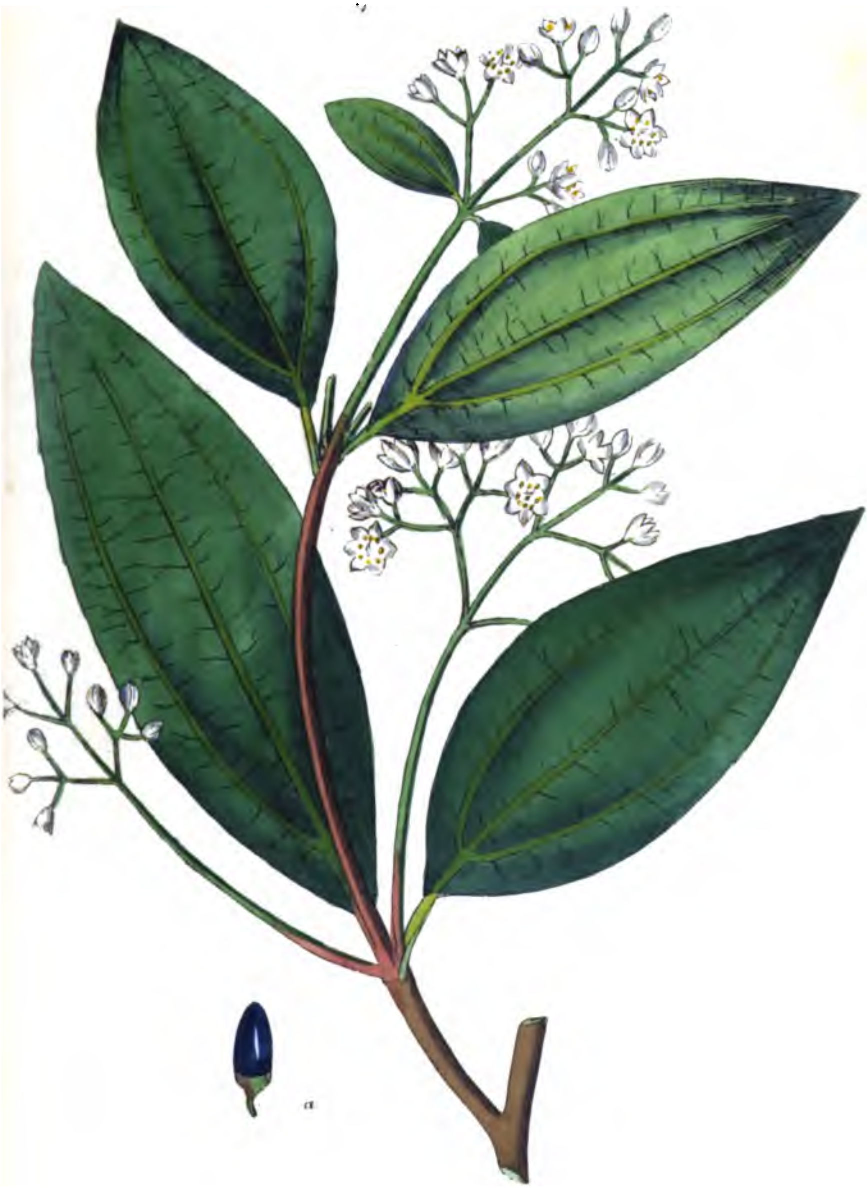
* Fig. a. the fruit.



Laurus Cinnamomum.

W.Sp

Pub. by John Wilson Princes St.t Soho Feb.y 1 1829.

tion of the cinnamon tree into the colonies of other European powers; but their endeavours were frustrated, for long before the cession of the Island of Ceylon to the British (at the peace of Amiens), it was cultivated in the Isles of France and Bourbon, in several parts of India, Jamaica, and some other of the West India Islands. It was first cultivated in this country by Mr. Miller, in 1768; and a plant of it has regularly flowered and ripened its seed in the hot-house of the Bishop of Winchester at Farnham, for several years past. The soil in which it thrives best is nearly pure quartz sand; in the cinnamon garden near Colombo, Dr. J. Davy found the soil to consist of 98.5 of silicious sand, and only 1.0 of vegetable matter in 100 parts.

In its wild state the cinnamon tree grows to the height of from twenty to thirty feet, and is about three feet in circumference; but when cultivated is not suffered to attain so large a size: it sends off numerous branches, which are covered with smooth bark, of a brownish ash colour; the leaves are from three to five or six inches long, of an oblong form, entire, pointed at both ends, trinerved, of a bright green, and stand in opposite pairs, on short channelled footstalks; the flowers (which appear in January) are produced from the younger branches, in axillary and terminal panicles; the petals are six, oval, pointed, concave, spreading, and of a greenish white or yellow colour; the filaments are nine, shorter than the corolla, flattish, erect, and stand in ternaries; the three innermost are glanduliferous, having two small glands placed at the base of each; the anthers are double, and unite over the top of the filament; the germen is oblong, supporting a simple style the length of the filaments, crowned with a depressed and triangular stigma; the fruit is a pulpy pericarpium, containing an oblong nut, resembling a small acorn, of a deep blue colour, with a terebinthine odour, and a taste somewhat like that of the juniper berry.

M. Falck, the Dutch governor of Ceylon, who was a native of the island, was the first who devoted any particular attention to its cultivation; his plans were followed up by our government, and considerable tracts of many miles are at present occupied by it, and are under the constant superintendence of the Chalias, or Mahabadda Singhalese, and an English civilian is placed at the head of the department. There are several varieties of the cinnamon tree known at Ceylon: the finest and most valued is found in the government gardens, and is from four to ten feet in height.* The trees that grow in the valleys, in a white, sandy soil, are fit to be barked when four or five years old, but those in a wet soil, or in shady places, require to be seven or eight years of age; the bark is good for nothing if the tree be more than eighteen years old. The barking commences early in May, and continues until late in October. Branches of three years old are selected and lopped off with a pruning knife or bill-hook; the outer bark or coating is then scraped off with a knife of a peculiar form, concave on one side, and curved on the other: with the point of this knife the bark is ripped up longwise, and the curved side is then employed in gradually loosening it from the branch till it can be taken off entire; in this state it appears in the form of tubes, open at one end. The bark is now tied up in bundles, and allowed to remain for twenty-four hours, by which a fermentation is produced, that facilitates the separation of any remaining cuticle, which, with the green pulpy matter under it, is carefully scraped off; the smaller pieces are then put within the larger, and by being dried in the sun they contract, until they attain the form in which they are seen in the European market.* The cinnamon thus prepared, is lodged in the government stores, where it undergoes a careful examination, and is sorted according to its quality. It is brought to Europe in bundles of about 80lbs. weight, which are packed as closely as possible in the hold of the vessel, and all the interstices filled up with black pepper, to preserve it from injury.† The quantity of cinnamon annually sold at the East India Company's sales, averages 318,258lbs. at an average of six shillings per lb.; but a good deal of an inferior quality is imported by private merchants from China and other places.‡

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* Seba enumerates ten varieties; but the four following only are said to be barked—1. Honey, sharp, sweet, or royal cinnamon; 2. Snake cinnamon; 3. Camphorated

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cinnamon, so called from its having the odour of camphor, and the root yielding this substance by distillation; and 4. Bitter astringent cinnamon, which has smaller leaves than the former varieties.

* Native officers are appointed to superintend these operations, and who are answerable for the quantity barked.

† The bags in which it is enclosed are made of cloth of the cocoa-nut bark.

‡ Cinnamon is cultivated at Quang-sy, in China, and of a very fine quality in the central mountains of Cochin China. It has lately been found to arrive at tolerable perfection in sheltered situations in Lower India.—*Ainslie's Materia Indica*, vol. i. p. 73. We are told by De Comyn, in his "State of the Phillippine Islands," that the cinnamon plant is found in its native state in the interior of Peru.

From the above accounts, it would appear that the Laurus Cinnamomum is not confined to Asia, but that it is also a native of the new world.

The oil of cinnamon is prepared in the Island of Ceylon by macerating the bark for two days in sea water, then distilling with a slow fire, and separating the oil from the water with which it comes over. Eighty pounds of cinnamon yield about five ounces of a heavy oil, and two ounces of an oil swimming on distilled water; on an average eleven pounds of cinnamon yield one ounce of oil.* In Ceylon the coarse unsaleable cinnamon is used for the distillation of the oil. Cinnamon oil is seldom to be met with pure, being generally adulterated with some expressed oil or alcohol.

SENSIBLE QUALITIES, &c. Cinnamon has a pleasant fragrant odour, and a peculiar sweet pungent taste. When good, it is somewhat pliable, thin, of a light yellowish-brown colour, and breaks in splinters. The inferior sorts, or what are called Chinese cinnamon, are much thicker, of a darker colour, less sweet, and more hot and pungent.

These qualities depend entirely upon the essential oil, which, when pure, is of a pale gold colour, heavier than water, perfectly soluble in alcohol, extremely hot and pungent,† with the taste and odour of the bark. This oil, when kept for many years, deposits a few crystals of a resinous nature. The aromatic qualities of cinnamon are extracted by water in infusion, but more powerfully by it in distillation, and in both ways also by proof spirit.

MEDICAL PROPERTIES AND USES. Cinnamon is a very useful and elegant aromatic and astringent. It is also cordial and tonic, and more grateful both to the palate and stomach than many other substances of this class; hence it proves of much service in several kinds of alvine fluxes, immoderate discharges from the uterus, in languid and weakened state of the intestines, dyspepsia, and nervous debility. The essential oil is one of the most immediate cordials and restoratives in languor, singultus, cramp of the stomach, flatulent colic, and debility. Cinnamon is given in substance (when powdered) in doses of from ten to twenty or thirty grains; and the oil, in doses of a drop or two, with a little sugar, mucilage, &c.

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* Neumann obtained only two scruples and a half of oil from one pound of the bark. Vide Chemistry, vol. ii. p. 188.

† The pure oil is so extremely pungent, that on being applied to the skin it produces an eschar.

Off. The Bark and Essential Oil.
Off. Pp. Aq. Cinnamomi, L. E. D.
Pulvis Cinnamomi, Comp. L. E. D.
Spiritus Cinnamomi, L. E. D.
Tinct. Cinnamomi, L. E. D.
—— Cinnamomi Comp. L. E.

ROSA CENTIFOLIA.

Hundred-leaved Rose.

Class ICOSANDRIA.—*Order* POLYGYNIA.

Nat. Ord. SENTICOSÆ, *Linn.* ROSACEÆ, *Juss.*

GEN. CHAR. *Petals* 5. *Calyx* pitcher-shaped, five-cleft, fleshy, contracted at the neck. *Seeds* numerous, hispid, affixed to the inner side of the calyx.

SPEC. CHAR. *Germs* ovate. *Peduncles* hispid. *Stem* hispid and prickly. *Petioles* unarmed.

THE native country of the rose is now unknown, although it is probable that the different species of it are indigenous to all the countries of the north of Europe, and to the northern parts of Asia and Africa. Its beauty and fragrance have long rendered it a favourite ornament of the gardens of these countries.* This species of rose rises to the height of from three to six feet; the stem is beset with numerous short spines; the leaves are pinnated, consisting of two or three pair of pinnæ with a terminal one; the leaflets are oval, broad, smooth, of a deep green colour on the upper surface, hairy on the under, serrated and closely attached (on very short petioles) to the common footstalk, which is rough, but without spines; the flowers are large, and supported on peduncles beset

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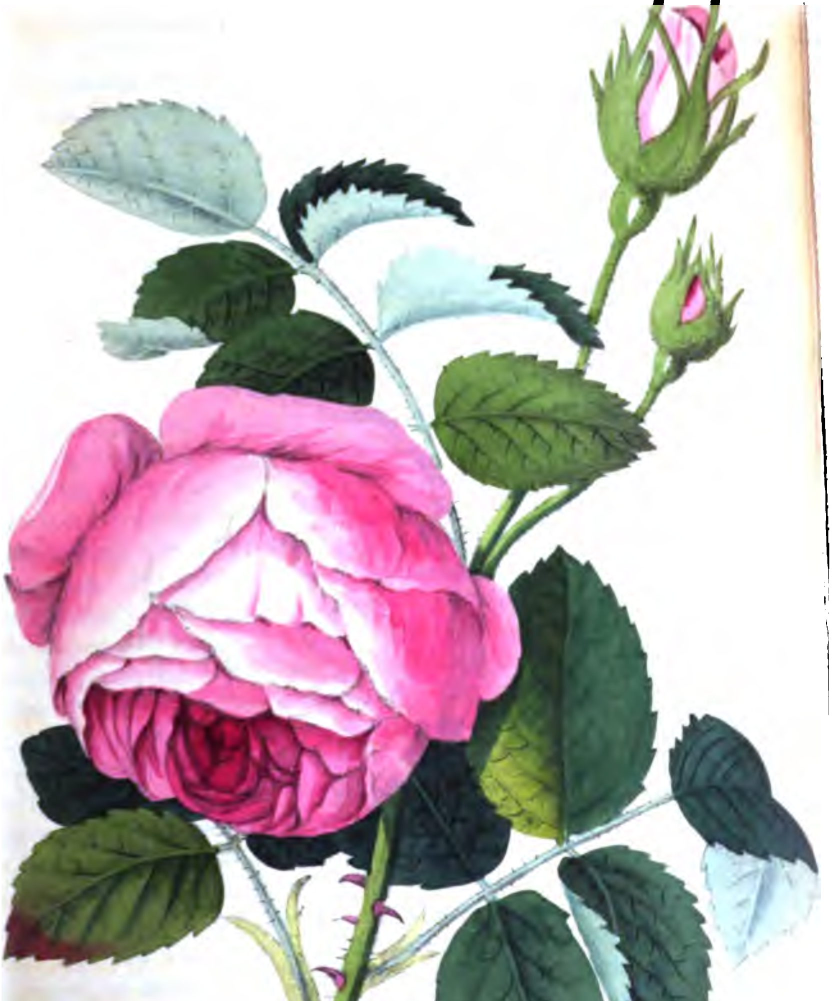
* The Rosa Centifolia was cultivated by Gerarde in 1596.



Printed by C. Hullmandel.

G. Spratt del et lith.

Rosa Centifolia.

with short bristly hairs; the petals are numerous,* and of a beautiful red colour, which varies in depth from a pale to a deep blush; the filaments are numerous, slender, short, inserted into the calyx, and furnished with triangular anthers; the germens are numerous, supporting short, villous styles, terminated with obtuse stigmata.

Botanists enumerate a number of different species of the rose, and their varieties, depending upon culture or other circumstances, are almost endless; so much so as often to render it difficult to ascertain to what species a particular rose belongs. We have reason to think that the Rosa Damascena is often confounded with the Rosa Centifolia, and with that species which Miller calls the Provence rose, but which latter we are inclined to think is only a variety of the Damascena. Again, it does not appear to us that botanists are agreed as to which is the Rosa Damascena, or which the Centifolia, some giving the latter term to the pale, and some to the red rose. The Rosa Damascena was considered by Linnæus as a variety only of the Rosa Centifolia; but Wildenow and others have arranged it as a distinct species. We apply the term Rosa Centifolia to the pale poly-petalous rose. The term Centifolia has been given to this rose from the supposed number of its petals; but it is to be understood as conveying rather the idea of multitude than of that precise number. Indeed we think, as a specific name, this term is misapplied, if Linnæus be correct in making one of the generic characters of this shrub to be quinque-petalous; in fact, the rose (this species in particular) only comes under our observation in its state of luxurious efflorescence, when by a forced culture a number, or perhaps the entire, of the stamina are converted into petals. When the whole of the stamina become petals the flower ceases to produce seed, from the want of the germinating principle, as happens with other double flowers. But this luxuriance is much more frequently observed in the Provence, or cabbage rose, as it is termed from the fulness of its flowers, than in any other species or variety. The petals of all the varieties of poly-petalous roses possess a very fragrant odour, and it is presumed are indiscriminately used in the distillation of rose water; it therefore becomes of little moment for pharmaceutical purposes, to enter minutely into the examination of the different species: we may, however, observe that the Provence rose is by far the most fragrant, and usually grows to the largest size, and therefore seems the most proper for the production of rose-water, which is almost the only use to which they are applied. These roses possess but very slight medicinal properties, and are seldom administered internally, &c.

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* In the natural state, the corolla consists of five petals only.

SENSIBLE QUALITIES. The petals (the only part directed for medicinal use) are of a pale red colour, and of a very fragrant odour; their taste sweetish, subacidulous, with a very slight degree of bitterness. The petals impart their odorous matter to watery liquors, both by distillation and infusion. On distilling large quantities, there separates from the watery fluid a small portion of a fragrant butyraceous oil, which liquefies by heat, and appears yellow, but concretes in the cold into a white mass. The *attar* or essential oil is obtained from various species of rose. We are informed by Dr. Ainslie, (vide Materia Indica, vol. i. p. 348), that the attar of the Levant and Tunis is prepared from the Rosa Sempervirens. The fragrance of the attar depends much upon the species of rose from whence it is distilled. According to Kæmpher and M. Langles,[*] those of Shiray and Cashmire are highly odoriferous, whilst the attar drawn from the roses of Syria and Barbary is of an inferior quality. The odour of this oil exactly resembles that of the rose, which to most people is extremely agreeable; hence it is much used as a perfume.[†] We may notice, however, that under certain circumstances, the odour has produced very untoward symptoms, as faintings, hysterical affections, inflammation of the eyes, &c.; and persons confined in a close room with a large quantity of roses have been in danger of immediate extinction of life. Orfila, in speaking of the deleterious effects of odoriferous plants, relates an instance of a celebrated painter, who could not remain in any room where there were roses, without being in a short time attacked with violent cephalagia, succeeded by fainting. Ledelius speaks of a

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[*] Récherches sur la Découverte de l'Essence de Rose.

[†] The process of making the essential oil, or attar of roses, as related by Colonel Polier in the Asiatic Researches, is as follows: Forty pounds of roses, with their calyxes, are put into a still with sixty pounds of water. The mass being well mixed, a gentle fire is put under the still, and when fumes begin to rise, the cap and pipe are properly fixed and luted. When the impregnated water begins to come over, the fire is lessened by gentle degrees, and the distillation continued until thirty pounds of water have come over. This water is to be poured upon forty pounds of fresh roses, and thence are to be drawn from fifteen to twenty pounds of distilled water. It is then poured into pans of earthen-ware, or of tinned metal, and left exposed to the fresh air for the night; the ottar, or oil, will be found in the morning congealed, and swimming on the surface of the water.

merchant, in whom the smell of roses occasioned an ophthalmia.[*] From the experiments of Drs. Priestley and Ingenhousz, these effects seem to be owing to the mephitic air (carbonic acid gas) which these and most other odoriferous flowers exhale.[†]

Medical Properties and Uses. These roses possess but very slight medicinal properties, and are seldom administered internally. A decoction of the petals is gently laxative; as such it is prescribed in the form of syrup, and when combined with oil or manna, is found to be an useful laxative for infants. Their chief use however, is in the distillation of rose-water.

Off.	The Petals.
Off. Pp.	Aq. Rosæ, L. E. D.
	Syrupus Rosæ, L. E.

◆

ROSA GALLICA.

Red Officinal Rose.

For *Class, Order, Nat. Ord.* and Gen. Char. see Rosa Centifolia.

Spec. Char. *Germens* ovate. *Peduncles* stiff, erect, and hairy. *Stem* prickly.

This species of rose is a native of the south of Europe; it is in general cultivation in our gardens, flowering in June and July. The stalks rise from two to three feet in height, are erect, and armed with a few short straight prickles; the leaves consist of two or three pair of leaflets, with a terminal one, but the leaflets are smaller than those of the Centifolia, and but slightly tomentose on the underside; the flowers are composed of many large widely-spreading petals, of a rich deep crimson colour, slightly fragrant, and displaying in the center numerous stamens, the filaments of which are thread-like, and support large yellow anthers; the germens are numerous, supporting villose styles crowned with papillary stigmas.

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[*] Ephem. Nat. Curios. dec. ii. an. 2, obs. xc.

[†] See Exper. on Vegetables, by Dr. Ingenhousz.

SENSIBLE QUALITIES, &c. The odour of this rose is considerably less fragrant than that of the Rosa Centifolia, but it is improved by drying;* the taste is slightly bitter and somewhat austere; water at 212° extracts both its taste and odour; the infusion is of a red colour, and strikes black with sulphate of iron; and also forms a dark coloured precipitate with sulphate of zinc,

MEDICAL PROPERTIES AND USES. The petals (the only part of this rose used medicinally) are generally considered to be tonic and astringent, although by some they are said to be purgative.† The petals in infusion however, are chiefly used as an elegant vehicle for the exhibition of neutral salts and mineral acids; and in this form are frequently prescribed in hæmorrhages, and many other diseases.

Off. The Petals.
Off. Pp. Confectio Rosæ, L. E. D.
Infusum Rosæ, L. E. D.
Mel Rosæ, L. D.
Syrupus Rosæ, E.

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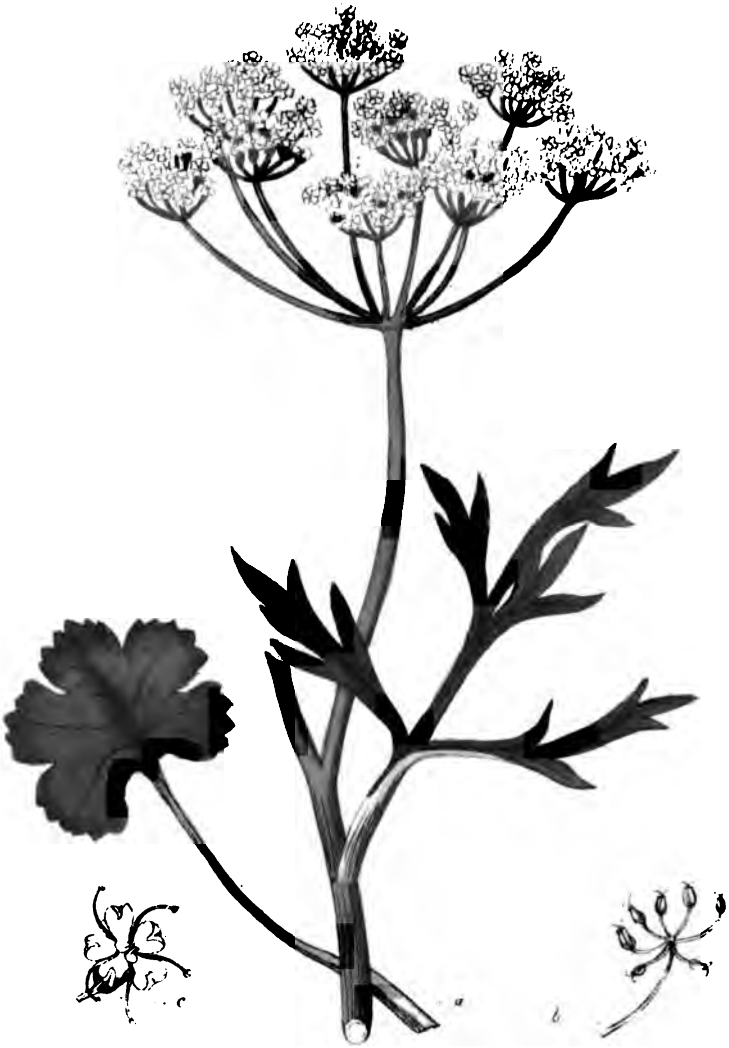
* Both the colour and the astringency of the petals are best preserved by hasty exsiccation. *Ed.*

† Porterius relates, that he found one drachm of the powdered rose petals occasion three or four alvine evacuations, and this not in a few instances, but in several. Dr. Ainslie also says—" The powder of the red rose petals, in doses of one drachm, is purgative.—*Materia Indica*, vol. i. p. 348.



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Pimpinella Anisum

PIMPINELLA ANISUM.

Anise.[*]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ. *Linn. Juss.*

GEN. CHAR. *Fruit* ovate, oblong. *Petals* inflected. *Stigma* nearly globular.

SPEC. CHAR. *Radical Leaves* three-cleft, laciniated.

THIS species of Pimpinella is the *Αννησου* of Dioscorides. It is a native of Egypt, but much cultivated in the south of Europe, particularly in Malta and Spain. Anise was cultivated in this country about the year 1661, but although the seed will ripen here, our summers are seldom warm enough to bring it to perfection; hence the seed is annually imported from Malta and Spain. Anise is an annual plant; the root is tapering; the stem rises about one foot in height, branched, smooth, striated, and jointed; the leaves on the lower part of the stem are of a roundish form, divided into three or five, indented or toothed, and stand upon long sheath-like footstalks, but the upper ones are divided into narrow pinnated segments; the flowers are small and white, and terminate the branches in flat umbels, without involucres; the corolla consists of five petals, which are ovate, and bent inwards at their extremities; the filaments are white, tapering, spreading, and furnished with roundish anthers; the germen is ovate, striated; the styles are short, and crowned with simple stigmata; the seeds are oblong, swelling, striated, and of a greenish colour.

SENSIBLE QUALITIES, &c. The seeds have an aromatic smell, and a pleasant warm taste, accompanied with a considerable degree of sweetness. Infused in water, they impart a little of their odour, but scarcely any flavour: in distillation, they give out the whole of their flavour both to spirit and water. When distilled with water, they yield a volatile oil of a yellowish colour. This oil congeals, when the air is not very sensibly cold (50° Fahrenheit) into a white butyraceous concrete. Its taste is milder and less pungent than that of many other distilled vegetable oils; but its smell, which exactly resembles the seeds, is extremely durable and diffusive. These seeds yield an oil also by expression, of a greenish colour, in taste grateful, and strongly impregnated with the flavour of the seeds. This oil consists of a bland, inodorous, fixed oil, combined with a considerable portion of the proper essential oil, on which the flavour and odour depends. Sixteen ounces of the seeds, lightly moistened by exposure to the steam of boiling water, are said to afford one ounce.

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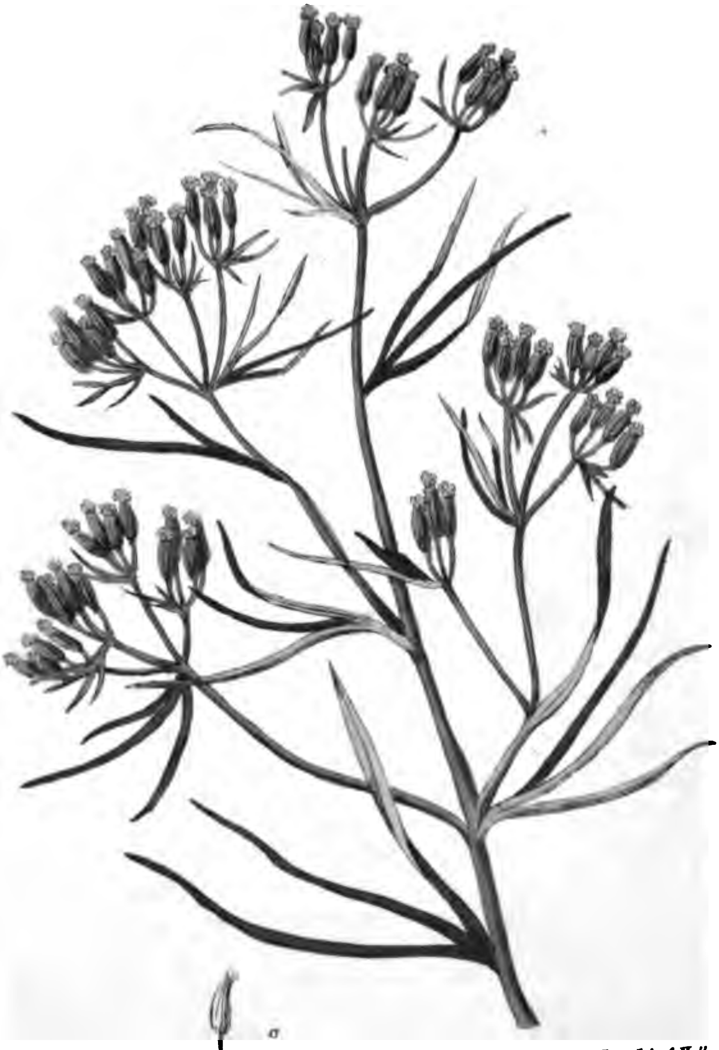
[*] Fig. *a.* radical leaf. *b.* Seeds. *c.* Flower, magnified.

MEDICAL PROPERTIES AND USES. The seeds have been long medicinally employed as an aromatic and carminative, in preference to most of the umbelliferous tribe of plants, particularly in flatulencies and tormina, to which young children are liable; and they are usefully combined with such purgatives as are apt to produce these effects. Formerly they were esteemed useful in pulmonary complaints, and said to possess the power of promoting the secretion of milk. The essential oil may be taken in doses of from four, five, to twenty drops; but in flatulencies and colics, the seeds in substance are said to be more effectual. They are given (when bruised) in doses of from twenty grains to one or two drachms.

Off. The Seeds.
Off. Pp. Oleum Anisi, L. E. D.
Spiritus Anisi, L.



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Cuminum Cyminum.

CUMINUM CYMINUM.

Cumin.[*]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ. *Linn. Juss.*

GEN. CHAR. *Fruit* ovate, striated. *Partial Umbels* four. *Involucre* 4-cleft.

THIS plant, which is the only species of Cuminum yet discovered, is thought to be the Κυμινον of Dioscorides. It is a native of Egypt and Ethiopia, but much cultivated in the islands of Sicily and Malta, from whence we are supplied with the seeds. It was cultivated in England in 1594, but our climate is not congenial to the growth of this plant. In its native soil, it rises to the height of about nine or ten inches, " but I have never seen it grow more than four in England, where I have sometimes had the plant come so far as to flower very well, but never to produce good seeds."[†] The root is annual, simple, and fibrous; the stalk is round, slender, branched, and often procumbent; the leaves are numerous, narrow, linear, pointed, grass-like, and of a deep green; the flowers are produced in numerous small umbels, which are usually composed of four radii, each supporting a partial umbel of the like number of flowers; both the general and partial involucre consist of three or four subulate unequal leaflets; the corolla is composed of five petals, of a purple colour, unequal, bent inwards and notched at the apex; the filaments support simple anthers; the germen is ovate, large, and inferior; the two styles are minute, and terminated by simple stigmas; the fruit is ovate, and consists of two oblong, striated seeds, flat on the side by which they are united, and convex and striated on the other.

QUALITIES, &c. Cumin seeds have a strong, heavy odour, and a bitterish warm taste, accompanied with a slight aromatic flavour. They give out great part of their smell by infusion in water, but

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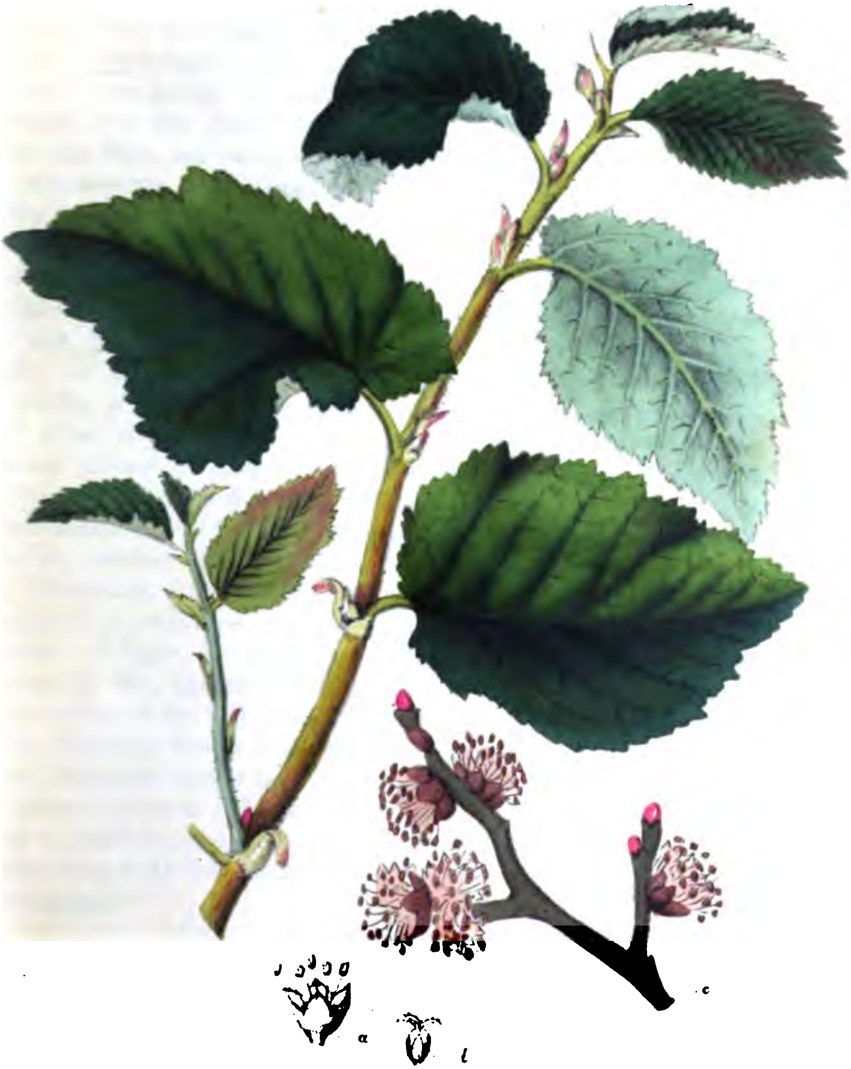
[*] Fig. *a.* the seed.

[†] Miller's Gard. Dict.



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Ulmus Campestris

on both sides, villose beneath along the nerves, doubly serrated, about three inches long and two broad, of a deep green colour, and stand alternately upon strong foot-stalks; the flowers appear before the leaves on short spikes at the bottom of the leaf-buds; the calyx is permanent, and divided at the border into five segments; there is no corolla; the filaments are tapering, twice as long as the calyx, and furnished with short upright anthers, marked with four furrows; the germen is round, compressed, and supports two styles terminated with downy stigmata; the fruit is a capsule of an oval, oblong form, containing a roundish seed, somewhat compressed.

SENSIBLE AND CHEMICAL PROPERTIES. The inner bark (the part used medicinally) has no remarkable smell, but a somewhat bitter, slimy taste. The external bark is brittle, contains but little mucilage, and is wholly destitute of both smell and taste. The decoction of the bark of the trunk is red, slimy, and grows black immediately with sulphate of iron; that of the twigs is dark red or brown, draws into threads, and by evaporation yields a brittle, semi-transparent extract, soluble in water, but not in spirit of wine or in ether.* The brittle residue, when treated in the same manner as Klaproth treated the gum-like exudation from the Ulmus Nigra, afforded nearly the same results.† As the infusion or decoction scarcely affects the solution of isinglass, elm bark probably contains but little tannin.

MEDICAL PROPERTIES AND USES. Elm bark is chiefly employed in cutaneous diseases, and with various success. Several cases of lepra, ichthyosis, and other inveterate eruptions, are related by Drs. Lysons,‡ Lettsom,§ and others, in which, seemingly, a decoction of the bark proved very efficacious; and we are told by Dr. Plenck ‖ that it is a specific for ichthyosis; but Drs. Willan and Bateman think it is of little use. From our own experience, we cannot say much in its favour; it appears in some instances to act as a diuretic, and probably may assist more active remedies in removing cutaneous eruptions. It is generally given in the form of decoction.

Off. The Bark.
Off. Pp. Decoctum Ulmi, L. D.

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* Gray's Elements.

† Thomson's Chemistry, Fourth Ed. vol. iv. p. 695.

‡ Vide Med. Trans. vol. ii. p. 203

§ Vide Medical Memoirs, p. 152.

‖ Doctrina de Morb. Cutan. p. 69.

EUGENIA CARYOPHYLLATA.

The Clove Tree.[*]

Class ICOSANDRIA.—*Order* MONOGYNIA.

Nat. Ord. HESPERIDIÆ, *Linn.* MYRTI, *Juss.*

GEN. CHAR. *Calyx* 4-parted, superior, persistent. *Petals* four. *Berry* one-celled, one-seeded.

SPEC. CHAR. *Leaves* lanceolate, acuminate, entire. *Panicles* axillary and terminal.

IT is strange that so little should be known of the history of this elegant and powerful aromatic, as to leave it a matter of conjecture whether it was known to the ancients or not. Such however appears to be the case; it is difficult to discover it in any of the writings of the Greeks, nor does Pliny even give any distinct account of it.

The name is evidently Greek, and some writers of the present day suppose it to be the Καρνόφυλλα of the Greeks, and according to others, the description of the Charumfel Bellum of Avicenna, and the Carunfel of Serapion is applicable to it.[†] It is indeed highly probable that this spice, as well as the nutmeg, was known to the Arabians, who are said to have been the first to introduce the clove into Europe; and it is scarcely possible to imagine that so valuable a tree should be indigenous to India and remain unknown to the Greeks and other nations, who, either for the purposes of war or commerce, were in constant communication with it. Indeed we should rather suppose that the clove tree was more generally to be met with formerly, than it is in the present day, and that it was not only a native of India, but of Egypt and other parts of Africa. At present, however, it is considered merely of Indian growth, or rather of the Molucca Islands in the Indian Ocean.[‡] These islands were first discovered by the Portuguese, under Magellan, in 1615; but were not taken possession of by them for fifty years after: at

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[*] Fig. *a.* the fruit, nearly ripe. *b.* Longitudinal section of the fruit. *c.* Back and front view of a stamen. *d.* A petal, *e.* The style.

[†] Vide J. Bauhini, Hist. vol. i. p. 426.

[‡] The clove tree was lately found by Sonnerat, in New Guinea.

this time the clove tree was very abundant throughout the islands, but on their conquest by the Dutch in 1605, the commercial jealousy of this nation led them to destroy all the clove trees, except in four of them,* that they might the better guard and protect the monopoly which they contemplated to establish in this trade. At Amboyna, which is the seat of government, and the principal place of growth for the cloves, the Dutch company allotted the inhabitants four thousand parcels of land, on each of which they were at first allowed, and about the year 1720 compelled, to plant about one hundred and twenty-five trees, amounting in all to five hundred thousand. Each of these trees produces annually, on an average, more than two pounds of cloves, so that the collective produce must weigh more than a million. Notwithstanding the precautions of the Dutch to retain an exclusive property in cloves, the tree has, at successive periods, found its way into other countries. In 1770, the French obtained some plants, which they carried to the Isle of France, and from thence, in 1774, to Cayenne. In 1789, it was also introduced into the island of Dominica, by William Urban Buëll, Esq.; and in 1803 into the island of Sumatra, by Mr. Wm. Roxburgh; it is now cultivated at all these places; we have not heard that any attempt has yet been made to introduce it into Europe. To bring the tree to the greatest perfection, a peculiar mode of cultivation seems necessary, which is practised at Amboyna by the Dutch, who keep it a profound secret.

The clove tree is a handsome tall branching tree,† rising upon a stem of very hard wood, covered with a greyish smooth bark; no verdure, it is said, is ever seen beneath it; the leaves are oblong, lanceolate, and pointed at both ends, firm, with many parallel nerves on each side of the midrib, entire, sinuated, and supported on short brown footstalks, standing in pairs: they are of rather a dull green colour, and, when bruised, their odour is highly aromatic; the flowers terminate the branches in bunches or panicles, which generally consist of nine, fifteen, or twenty-one flowers; the calyx of the fruit is oblong, woody, and divided at the brim into four permanent, small, pointed segments; the calyx of the flower is composed of four leaflets, which are roundish, concave, deciduous,

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[*] Amboyna, Orna, Honimoa, and Noussa-Laout.

[†] According to some writers, this tree, in favourable situations, frequently grows to the height of fifty feet, and will bear from about nine or ten years to one hundred years of age, producing annually from ten to twenty pounds of cloves each; all these statements are probably exaggerated.

and placed above the germen; the corolla consists of four petals, roundish, notched, very small, at first white, afterwards bluish green, and finally of a red colour; the filaments are numerous, slender, inserted into the calyx, and furnished with simple anthers; the germen is oblong, large, terminated by the calyx of the fruit, and placed below the insertion of the corolla; the style is tapering, and the stigma simple; the pericarpium is one-celled, umbilicated, and terminated by the indurated converging calyx; the seed is a large oval berry; the fruit in its mature state is known by the name *Anthophyllus.*

The clove is the flower of the tree before it is fully expanded; for when fully blown it is nearly inodorous, and the real fruit is not aromatic. At Amboyna, the season for gathering them is from October to December and January, when the flowers begin to assume their reddish hue; the boughs of the trees are then strongly shaken, or the cloves beaten down with long reeds, large cloths being spread to receive them; they require to be dried quickly, but are first immersed in boiling water, then exposed to the smoke of the bamboo cane, and a heat of 120° Fahr., when they acquire a dark yellowish hue; the drying is afterwards finished in the sun, when they become perfectly brown. The fumigation and immersion are thought necessary to preserve the clove. In the West Indies, those cloves dried altogether in the sun are considered the best. The clove tree yields its first crop at the age of six years, and attains its highest state of bearing at twelve; and it is said, that its existence is limited to twenty-four or twenty-five years. Cloves are imported into this country from the Dutch settlements; the best in chests, and the inferior kinds in bags.

SENSIBLE PROPERTIES. Good cloves have a strong, fragrant, aromatic odour, and a hot, acrid, aromatic taste, which is very permanent; when in perfection, they are heavy, oily, and easily broken; they should make the fingers smart when handled, and leave an oily moisture on them when pressed. In form they resemble a small nail, scarcely exceeding half an inch in length, with a roundish, conical head, resting in a socket formed of, and terminated by, four sharp spreading points, somewhat resembling the fangs of a tooth. Their colour is a deep reddish brown, the conical part of the head being lighter and yellower; this head is very easily separated from the body of the clove. The best variety of Amboyna cloves is smaller and darker than the other varieties, very scarce, and as a mark of pre-eminence is named the royal clove; the Dutch sometimes mix among the best cloves those from which the oil has been extracted, and the fraud is not easily discovered, as these latter regain part of their flavour by the mixture. The pungency of cloves resides in their resin, or rather in a combination of resin with essential oil, and to the latter they owe their odour, for the spirituous extract is very pungent; but if the oil and the resin contained in this extract are separated from each other by distillation, the oil will be very mild, and any pungency which it does retain proceeds from some small portion of adhering resin, while the remaining resin is quite inodorous. Water extracts their odour, but little of their pungency; ether extracts completely their sensible qualities, and when the tincture is evaporated on water, a considerable portion of a very pungent, hot, unctuous resin, and some extractive, remain. Cloves acquire weight by imbibing water, and this they will do at some considerable distance: the Dutch, who trade in cloves, take advantage of this; for as they sell them always by weight, when a bag of cloves is ordered, they hang it for several hours before it is sent in, over a vessel of water, at about two feet distance from the surface. No plant, or part of any plant, contains so much essential oil as cloves do; from sixteen ounces, Neumann obtained by distillation two ounces and two drachms; and Hoffmann obtained an ounce and a half of oil from two ounces of spice. This oil is specifically heavier than water, nearly colourless, but becoming yellow by age. It has the flavour of the cloves, but is much milder; it is frequently much adulterated, and when it has a hot, fiery taste, and a great depth of colour, it may be suspected. The Dutch oil generally exhibits these qualities, owing, it is supposed to its containing in solution some of the resin of the cloves extracted by alcohol.* The oil is brought here in bottles, but a considerable quantity is drawn in this country.

MEDICAL PROPERTIES AND USES. Cloves are accounted the hottest and most acrid of the aromatics, and by acting as a powerful stimulant to the muscular fibres, may, in some cases of atonic gout, paralysis, &c. supersede most other stimulants of the aromatic class: they are sometimes given alone in dyspepsia, when it is attended with a very languid state of the circulation, and a sense of coldness in the stomach; but their chief use is, as corrigents to other medicines. The oil is used as a corrigent to griping extracts, and sometimes as a local application for tooth-ache. In the

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* Vauquelin obtained an oil resembling that of cloves from the leaves of the Agathophyllum Ravensara.

East Indies, and in some parts of Europe, cloves are so much admired as to be thought an indispensible ingredient in almost every dish: they are put into food, liquor, wines, and likewise enter into the composition of perfumes. The dose of powdered cloves is from five to ten grains; and that of the oil from m. ii to m. vi.

Off.	Caryophylli, Cloves.
Off. Pp.	Infusum Caryophyllorum, L. Spiritus Lavendulæ Comp. D.

◆

TAMARINDUS INDICA.

The Tamarind Tree.[*]

Class MONADELPHIA.—*Order* TRIANDRIA.

Nat. Ord. LOMENTACEÆ, *Linn.* LEGUMINOSÆ, *Juss.*

GEN. AND SPEC. CHAR. *Calyx* four-parted. *Petals* three. *Nectary* of two short bristles under the filaments. *Legume* pulpy.

THIS tree, of which there is but the one species, appears, from various writers, to be a native of both the Indies, of Egypt, Arabia, and the warmer latitudes of America; although Sir Hans Sloane, (no mean authority) says, it was originally unknown in the West Indies, and that it was first planted at Acapulco. According to Miller it was cultivated in Britain in 1633. There is a superstitious belief among the natives of some parts of India, that it is dangerous to sleep under this tree.[†]

The tamarind tree rises to a great height, sending off numerous large branches which spread to a considerable extent, and present a very beautiful appearance; the trunk is erect, thick, and covered with rough bark of a grey colour; the leaves are pinnate, alternate, consisting of from fourteen to sixteen pairs of small pinnæ, which

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[*] Fig. *a.* the pistillum. *b.* The stamens. *c.* A seed. *d.* The pericarpium, or pod.

[†] We are told by Dr. Ainslie, (Materia Indica) that herbs of any kind are seldom seen growing in such situations, and never with luxuriance.

[illegible]

[illegible] and in some parts of Europe [illegible] food, liquor, [illegible] The [illegible] and that of the [illegible]

[illegible]

* * *

TAMARINDUS INDICA

The Tamarind Tree.*

Class XVI. Monadelphia.—Order Triandria.

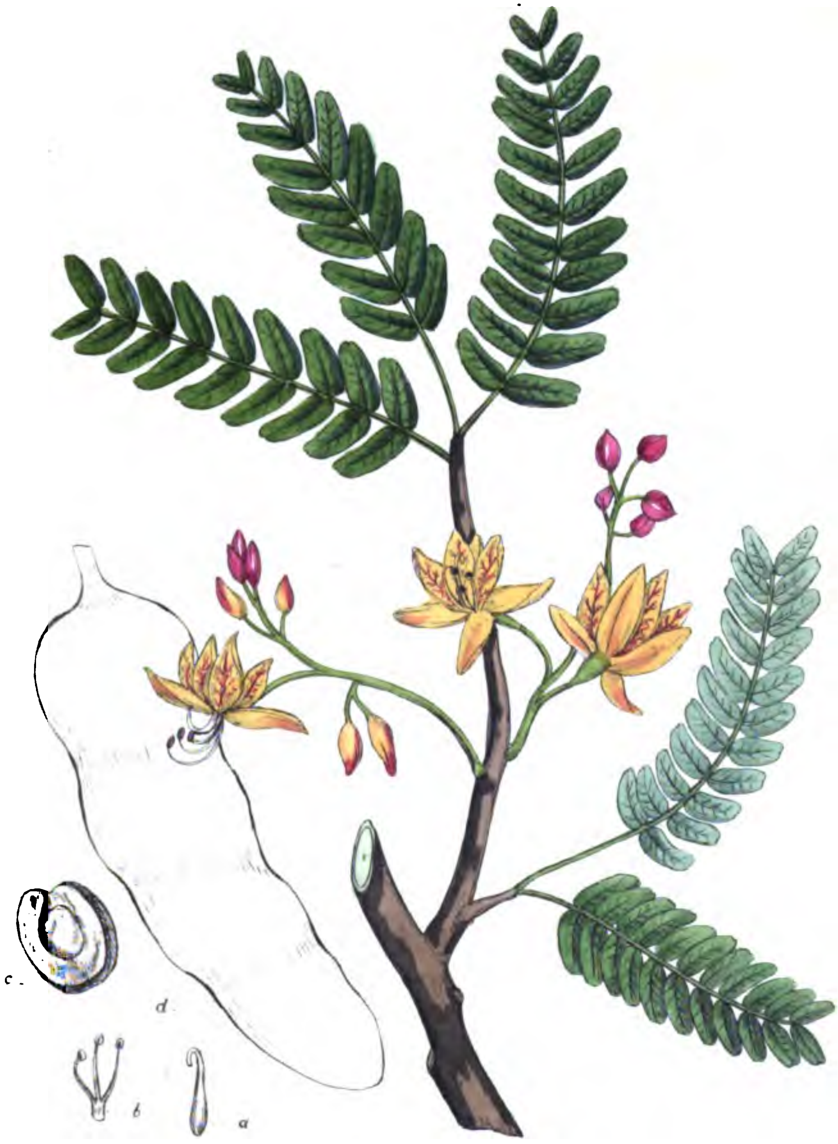
Nat. Ord. Leguminosae, Linn. [illegible]

[illegible]

The tree, of which there is but the one species, [illegible] to be a native of both the [illegible] of America [illegible] unknown [illegible]

[illegible]

[illegible] with lemonade.



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Tamarindus Indica.

are opposite, oblong, obtuse, entire, smooth, of a bright yellowish-green colour, and standing upon very short footstalks; the flowers approach to the papilionaceous kind, and are produced in lateral clusters of five or six; the calyx consists of four deciduous leaves, which are reflexed, oblong, or rather ovate, entire, smooth, nearly equal in size, and straw coloured, or yellowish; the petals are three, ovate, concave, acute, indented, and plaited at the edges, about the length of the calyx, and of a yellowish colour, beautifully variegated with red veins; the peduncles are about half an inch long, and each furnished with a joint as the flower turns inwards; the filaments are most commonly three, but in some flowers we have found four, in others only two; they are purple, united at the base, and furnished with incumbent, brownish anthers; the germen is oblong, compressed, incurved, standing upon a short pedicle; the style is tapering, somewhat longer than the filaments, and terminated by an obtuse stigma; the fruit is a pod of a roundish, compressed form, from three to five inches long, containing two, three, or four flattish, angular, shining seeds, lodged in a dark pulpy matter, and covered by several rough, longitudinal fibres; these seeds are about the sise of a kidney bean, of a reddish, brown colour, extremely hard, bitter and somewhat acrid to the taste: they will keep for any length of time without decay. According to Jacquin, the flowers appear from October to November.

The pulp of the tamarind, with the seeds connected together by numerous tough strings or fibres, are brought to us freed from the outer shell, and preserved in syrup. They are prepared for exportation at Jamaica, in the following manner: "The fruit or pods are gathered when fully ripe, (about June, July and August), which is known by their fragility, or easy breaking on small pressure between the finger and thumb; the fruit taken out of the pods, and cleared from the shelly fragments, is placed in layers in a cask, and boiling syrup poured over it till the cask is filled; the syrup pervades every part quite down to the bottom, and when cool the cask is headed for sale."* The fruit of the East India tamarind is more esteemed than that of the West India; they are easily to be distinguished by the greater length of the pods of the former, and the pulp being dryer and of a darker colour: they are said to be preserved without sugar, which we are much inclined to doubt. When tamarinds are good, they are free from any degree of mustiness; the seeds are hard, flat, and clean; the strings tough, and entire; and a clean knife thrust into them does not receive any coating of copper: they should be preserved in jars closely covered.

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* Long's Jamaica, vol. iii. p. 729.

SENSIBLE AND CHEMICAL PROPERTIES. Tamarinds are inodorous; in their fresh state they are austerely acid, (producing an effect on the teeth similar to that produced by the mineral acids when not sufficiently diluted), but as we receive them they have an agreeable, acid, sweetish taste. According to Vauquelin the pulp contains, independent of the sugar with which it is mixed, supertartrate of potass, gum, jelly, citric acid, tartaric acid, malic acid, and a feculent matter. The acid taste depends chiefly on the citric acid, the quantity being greater than that of the others: sixteen ounces of the prepared pulp, containing one ounce and a half of citric, but only two drachms of tartaric acid; half a drachm of malic, and half an ounce of supertartrate of potash. Tournefort relates that an essential salt may be obtained from tamarinds by dissolving the pulp in water, and setting the filtered solution, with some oil upon the surface, in a cellar for several months; that the salt is of a sourish taste, and not easily soluble in water; and that a like salt is sometimes found naturally concreted on the branches of the tree. Beaumé observes that this salt may be more expeditiously obtained by clarifying a decoction of the tamarinds with white of eggs, then filtering, and evaporating it to a proper consistence, and setting it to cool; the salt shoots into crystals of a brown colour, and has a very acid taste, but on dissolving and crystallising them again, or barely washing them with water, they lose almost all their acidity, the acid principle of the tamarinds seeming not to be truly crystallizable.

MEDICAL PROPERTIES AND USES. This fruit, the use of which was first learned of the Arabians, contains a larger proportion of acid, with the saccharine matter, than is usually found in the *fructus acido dulces;*[*] it is therefore not only employed as a laxative, but also for abating thirst and heats in various inflammatory complaints, and for correcting putrid disorders, especially those of a bilious kind, in which the cathartic, antiseptic, and refrigerant qualities of this fruit have been found equally useful. The simple infusion of the pulp in warm water, or a whey made by boiling ℥ii.

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[*] Dr. Cullen thinks, that as the principal medicinal purpose of tamarinds depends on their acidity, which is counteracted by the admixture of sugar in preserving them, it would be of more utility if they were always imported in the pods. It is doubtful, however, whether they could be long preserved in this way.

of it in two pints of milk and straining, form very grateful refrigerant beverages in febrile diseases, and may be advantageously used.[*] The dose of the simple fruit required to act as a cathartic is so large (from ʒi. to ʒii.) that it is seldom given alone for this purpose, but is generally combined with manna, senna, or with some neutral salt that has not potass for its base; these latter being decomposed by it. It forms an agreeable addition to infusion of senna, but the purgative power of the latter is weakened by it.

Off. The Pulp or Preserved Fruit.
Off. Pp. Infusum Sennæ Comp. D. E.

◆

CORIANDRUM SATIVUM.

Common Coriander.[†]

Class PENTANDRIA.—*Order* DIGYNIA.
Nat. Ord. UMBELLATÆ. *Linn. Juss.*

GEN. CHAR. *Corolla* radiate. *Petals* inflex-emariginate. *Involucre* universal, one-leafed; the partial ones halved. *Fruit* spherical.

SPEC. CHAR. *Fruit* globular, obscurely ribbed, and divisible into two hemispherical seeds.

THIS species[‡] of coriander is the Κοριαννον of Dioscorides; it is a native of the south of Europe, where in some places it is said to grow in such abundance, as frequently to choke the growth of wheat and other grain. From its extensive cultivation for medicinal purposes, it has become naturalized to this country, and is now found

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[*] Thomson's Mat. Med.

[†] Fig. *a.* represents a flower magnified. *b.* The pistillum and calyx.

[‡] The genus Coriandrum comprises but few species, two only being known and cultivated in our botanic gardens; viz. the one under consideration, and the Testiculatum, a native of the south of Europe.—*Ed.*

wild in some parts of Essex, frequently growing in corn fields, the sides of roads, and about dunghills. The root is annual; the stalk rises about two feet in height, erect, round, smooth, and branched, of a glaucous tinge; the leaves are compound: the lower ones pinnated with gashed, wedge-shaped, somewhat roundish leaflets, the upper are divided into narrow linear-pointed segments; the umbels and umbellules are both many-rayed, but the latter composed of more radii than the former, and each furnished with an involucrum of three narrow leaves, situated on one side, but the general involucrum is often wanting, or formed of a single linear leaf; the flowers are white, or of a reddish colour, composed of five unequal oblong petals, which are bent inwards; the five filaments are slender, and furnished with roundish yellow anthers; the germen is globular, and placed below the insertion of the corolla; the two styles are bent in opposite directions, and terminated by simple stigmata; the fruit is globular, and divisible into two hemispherical concave seeds.[*]

SENSIBLE QUALITIES. Every part of the plant when fresh has a very offensive odour, greatly resembling the Pentatoma Viridis of Linnæus, a species of Cimex or bug; hence probably the origin of the word Coriandrum, from Κορις, a bug.[†] The seeds when dried have a grateful aromatic smell, a moderately warm, and slightly pungent taste; these qualities depend upon an essential oil, that can be obtained separate by the distillation of the seeds with water. The seeds give out their active principles completely to alcohol, but only partially to water.

MEDICAL PROPERTIES AND USES. The seeds, like most of the umbelliferous plants, are stomachic and carminative: hence they are sometimes used in flatulencies and weakness of the stomach; but they are principally used to disguise the odour and unpleasant taste of senna and other cathartics, and to correct their griping quality. It is asserted by Dioscorides that the seeds, when taken in any considerable quantity, produce deleterious effects; but we are told by Dr. Withering that he has known six drachms taken at once without any remarkable effect. The dose of the bruised seeds is from one scruple to a drachm.

Off. The Seed.

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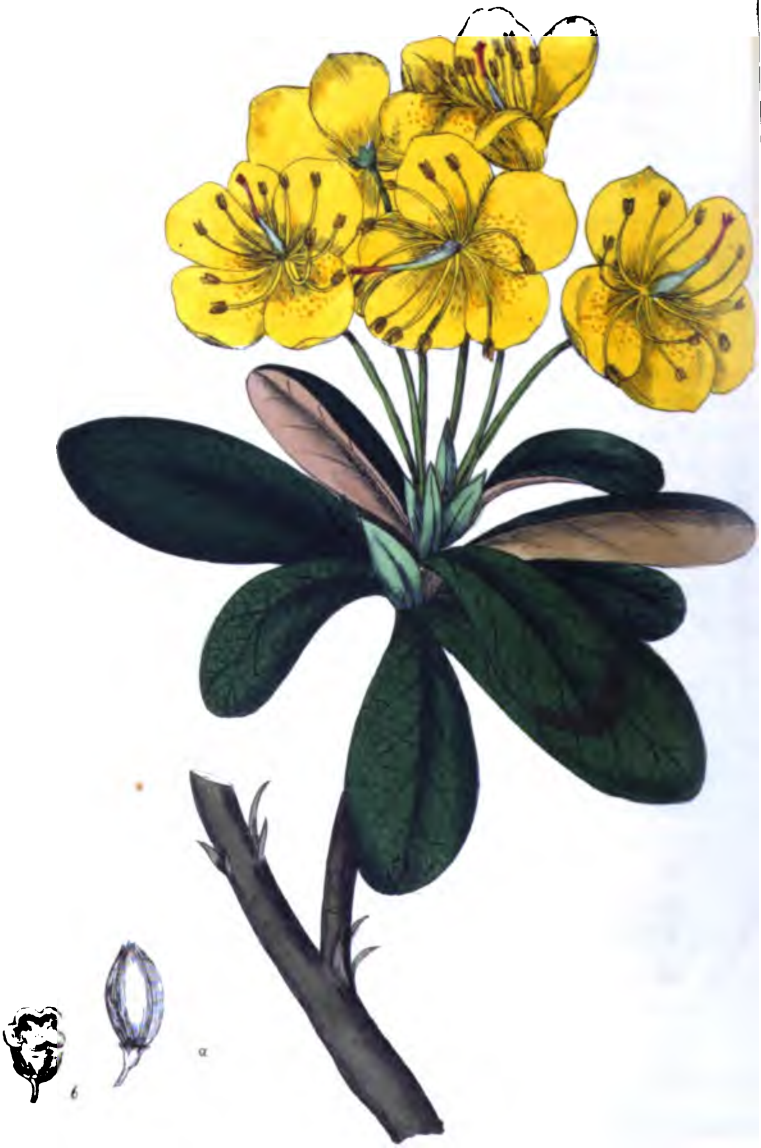
[*] This form of the fruit distinguishes the genus Coriandrum from all the other Umbellatæ.—*Ed.*

[†] Alston's Lect. on the Mat. Med. vol. i. p. 349.



G. Spratt del et lithog.

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Rhododendron Chrysanthum.

RHODODENDRON CHRYSANTHUM.

Yellow-flowered Rhododendron.[*]

Class DECANDRIA.—*Order* MONOGYNIA.
Nat. Ord. BICORNES, *Linn.* RHODODENDRA, *Juss.*

GEN. CHAR. *Calyx* 5-parted. *Corolla* nearly funnel-shaped. *Stamens* declined. *Capsule* 5-celled.

SPEC. CHAR. *Leaves* oblong, reticulated, rugged above. *Corolla* irregularly wheel-shaped.

THIS species[†] of Rhododendron is a native of Siberia, and like most of the genus delights in mountainous situations; and it is also occasionally found on the banks of rivers. It was introduced into this country about twenty-five years ago, but the climate is not congenial to this shrub, and it seldom perfects its flowers: in its native clime it flowers in June and July.

The stem rises about a foot in height, and sends off several spreading branches, which are covered with a brown bark; the leaves are oblong, obtuse, thick, veined, reflexed at the margin: on the upper side of a deep green, on the under ferruginous or glaucous, surrounding the branches upon strong footstalks; the flowers are large, yellow, and stand upon long peduncles, terminating the branches in the form of umbels; the calyx is persistent, and five-toothed; the corolla is monopetalous, inclining, irregularly wheel-shaped, and divided into five spreading segments; the filaments are slender, spreading, nearly the length of the corolla, supporting oval anthers; the germen is pentagonal, indented, supporting a long style, terminated by an obtuse stigma; the capsule is ovate, somewhat angular, and divided into five cells, which contain many small irregular greyish seeds.

The yellow-flowered rhododendron was first described, and its medicinal properties made known, by Gmelin and Steller, about the year 1747,[*] who mention it as a medicine successfully used (in Siberia and other northern situations) for the cure of rheumatism, and other painful affections of the joints. It did not, however, excite much attention as a remedial agent till about the year 1779, when Koelpin strongly recommended it as an efficacious medicine, not only in rheumatism and gout, but in venereal cases, and it is now very commonly employed in various parts of Europe.[†]

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[*] Fig. *a.* the capsule. *b.* A transverse section of the capsule.

[†] Sixteen species are enumerated in the Hort. Cant. as being cultivated in our botanic gardens.

SENSIBLE QUALITIES. The leaves of this plant are inodorous, their taste bitterish, astringent, and somewhat austere; water extracts these qualities either by infusion or decoction.

MEDICAL PROPERTIES AND USES.—The leaves of this plant are stimulant, diaphoretic, and narcotic; we are told, that when taken, they first increase the arterial action and excite perspiration, and that these effects are followed by a gradual diminution of the pulse, which in one patient was reduced to thirty-eight beats.[‡] In large doses they prove a powerful narcotic poison, producing all the symptoms common to other narcotics, viz. nausea, vomiting, intoxication, delirium, &c.[§] In Siberia they use a decoction of this plant, made by putting two drachms of the dried leaves in an earthen pot, with about ten ounces of boiling water, keeping it nearly at a boiling heat for a night; this they take in the morning, and by repeating it three or four times, generally effected a cure. When administered in this way, it is said to occasion heat, thirst, and some degree of delirium, and also a peculiar creeping sensation in the parts affected, which after a few hours subsides, and the pain is relieved. It has been remarked by Steller, that the effects produced by this plant are found to vary according to the soil on which it grows: that produced in one place having been uniformly found narcotic, that of another cathartic, and that of a third productive of a sense of suffocation.

This plant has not been much used in this country, but when prescribed, it is usually given in the form of decoction, made by boiling half an ounce of the dried leaves in ten or twelve ounces of water, over a slow fire, for twelve hours, in a covered vessel. The dose of

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[*] Flora Siberica, vol. iv. p. 121.

[†] Pallas Flora Rossica, and J. H. Zahn Diss. Medinang. de Rhodod. Chrysanth. 1783.

[‡] See Home's Clin. Exper. p. 140.

[§] Similar effects were produced on a goat, which on eating ten leaves of the plant was seized in a few minutes with tremblings, sopor, &c. See *Steller* in *Gmelin*, l. c.

the strained liquor is from one to two ounces twice a day; this quantity may be gradually increased. During the operation of this medicine, it is best to avoid taking liquids as much as possible, as they are apt to induce vomiting.

Off. The Leaves.

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ZINGIBER OFFICINALE.

Narrow-leaved Ginger.[*]

Class MONANDRIA.—*Order* MONOGYNIA.

Nat Ord. SCITAMINEÆ, *Linn.* CANNÆ, *Juss.*

GEN CHAR. *Anther* double. *Filament* lengthened beyond the anther, with a furrowed awl-shaped apex. *Style* received in the furrow of the anther.

SPEC. CHAR. *Bracteas* ovate-lanceolate, acute. *Nectary* 3-lobed.

THE GINGER plant is a native of the East Indies, and is supposed to grow in the greatest perfection on the coast of Malabar,[†] and Bengal. It is also said to grow wild in some parts of America; but Jacquin says " Sylvestrum in America non vidi;" be that as it may, it is now plentifully cultivated in the warmer parts of America, and the West India islands, from whence chiefly it is imported into Europe. It was first introduced into this country by Mr. P. Miller, about the year 1731,[‡] and is still cultivated in the dry stoves in some of our botanic gardens, flowering in September.

The root is perennial, firm, tuberous, of a compressed roundish form, beset with transverse rugæ, covered with ash coloured bark, and sends forth many long fibres and offsets; the internal substance of the younger roots is soft, fleshy and greenish: of the older, it is compact and fibrous; the leaf-stalks are about three feet high, round, herbaceous, upright and leafy; the leaves are linear, lanceolate, or

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[*] Fig. a. the style. *b.* The anthers. *c.* The stigma. *d.* One of the outer bractea.

[†] We are told by Dr. Ainslie, (Vide Materia Indica) that the ginger plant is a native of many eastern countries, but it is no where to be found of a finer quality than on the coast of Malabar.

[‡] Hort. Kewensis. It is said to have been raised here before the year 1605, by Edward Lord Zouch.—*Ed.*

sword-shaped, smooth, pointed, entire, and stand alternately upon the sheaths of the stalks; the flowering stem rises about a foot high, erect, round, alternately sheathed, with tubular bracteas, and terminates in an obtuse imbricated spike; the flowers appear solitary, between the bracteal scales of the spike; the corolla is monopetalous, tubular, and divided into three unequal segments, of a yellowish colour, and revolute; the nectary occupies the mouth of the tube of the corolla, and has a bilabiated appearance: the lip is obtusely trifid, of a reddish purple colour, and marked with yellowish dots; there is only one filament, which is extended beyond the anther, which is oblong, and of a whitish colour; the style is long and filiform; the stigma is obtuse and villous; the capsule is three-celled, and contains many seeds.

This plant is the Amomum Zingiber of Wildenow, the Zingiber Majus of Rumphius;* and the Ζιγγιϐέρις of Dioscorides: at Malabar it is named Ischi.† Its Greek appellation is supposed to be derived from the Persian, Zungebeel; and probably the English name ginger from the district of Gingi, where it grows particularly abundant. In Jamaica, where it is now extensively cultivated, ginger attains its full height, and flowers about August or September, and fades about the close of the year. When the stalks are entirely withered, the roots are in a proper state for digging; this is generally performed in the months of January and February. After being dug, they are picked, cleansed, and gradually seethed or scalded in boiling water; they are then spread out, and exposed every day to the sun, till sufficiently dried; and after being divided into parcels of about 100 lb. weight each, they are packed in bags for the market: this is called black ginger.‡ White ginger is the root of the same plant, but instead of being scalded, which gives the dark appearance to the former, each root is picked, separately washed, scraped, and dried with great care. We are told by Jacquin,§ that ginger loses part of its essential oil by being immersed in boiling water, and from this cause black ginger is less useful for medicinal and other purposes than the white.

When the roots are intended to be preserved in syrup, they are dug up when the shoots are not more than five or six inches in height.

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* Herb. Amboinense, 5, p. 156, tom. lxvi. f. 1.

† Hort. Malab. 11. p. 21, tom. xii.

‡ Long's History of Jamaica, p. 700.

§ Vide Hort. Vindob. vol. i. No. 75.

Ginger, when good, is firm, somewhat heavy, and free from worm holes; those pieces that are light, soft, friable, and fibrous, are of an inferior quality, and should be rejected.

SENSIBLE AND CHEMICAL QUALITIES, &c. Ginger has a peculiar spicy odour, which depends upon the essential oil it contains; its taste is hot and pungent; both water and spirit extract these qualities. Ginger root contains a very large proportion of starch, combined with fecula and resin. From the analysis of ginger by MM. Morin and Rouen,* it is composed of resin soluble in ether, resinous matter insoluble in ether, vegeto-animal matter, a substance analogous to osmazome, acetic acid, a blueish green oil, acetate of potass, starch, gum, sulphur, several oxides, and lignin. The distilled oil is of a red colour, limpid, with the taste and odour of the root. We are told by Rheede, that it swims on water, but that sold in the shops sinks, and has a smell of turpentine. The pungency of ginger resides in a resino-extractive matter, which is combined with fecula, but may be obtained separate by evaporating the ethereal tincture on the surface of water.

MEDICAL PROPERTIES AND USES. Ginger is stimulant and carminative. It is seldom given but in combination with other medicines, when it forms an useful adjunct. The cases in which it is more immediately serviceable, are flatulent colics, debility and laxity of the stomach and intestines, gout when it attacks the stomach,† and in torpid and phlegmatic constitutions, to excite brisker vascular action. We are informed by Dr. Ainslie, that the Europeans in India, of delicate nerves, frequently use an infusion of ginger in place of common tea; this is either prepared with dry ginger, or the green root cut into thin slices. From the considerable flow of saliva it excites when chewed, it has been found an useful sialogogue in relieving the pain of tooth-ache, and also in relaxations of the uvula and tonsils, and in paralysis of the muscles of the tongue. Ginger is given in substance, when powdered, in doses of from ten to twenty grains. It enters into many of the officinal preparations of our pharmacopœias.

Off. The Root.
Off. Pp. Syrupus Zingiberis, L. E. D.
Tinctura Zingiberis, L. D.

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* Jour. de Pharm. June 1823.

† In Sir J. Sinclair's Code of Health, we are informed of the virtues which ginger possesses in keeping off the gout, as instanced in the case of Lord Rivers, who took it in large doses for more than thirty years with the happiest effects. Vol. i. p. 233.

POLYGALA SENEGA.

Rattle-snake Milk-wort.[*]

Class DIADELPHIA.—*Order* OCTANDRIA.

Nat. Ord. LOMENTACEÆ, *Linn.* PEDICULARES, *Juss.*

GEN. CHAR. *Calyx* five-leaved, with two of the leaflets wing-shaped and coloured. *Legume* cordate, two-celled

SPEC. CHAR. *Leaves* alternate, lanceolate. *Stem* erect, herbaceous, simple. *Spike* terminal. *Flowers* beardless.

THE Genus Polygala comprises a very numerous tribe of plants, natives of every quarter of the globe. M. de Candolle enumerates above one hundred and sixty species, of which about thirty have been introduced into our botanic gardens. Of this numerous family of plants, one species only is indigenous to Britain, the Polygala Vulgaris, which is common in many parts of England, growing in pastures, and upon dry heaths.[†] The rattle-snake milk-wort is a native of Virginia, and other parts of North America, flowering in June and August; it was first introduced into our gardens about the year 1759, by Mr. P. Miller.

The root is perennial, woody, branched, contorted, about the thickness of a finger, and covered with a grey or ash-coloured bark; it sends up several stems, which are of a dark reddish colour, and rise nearly a foot in height, erect, round, smooth and slender; the leaves are oblong, or lance-shaped, acutely pointed, of a pale green, and stand alternately sessile, or upon very short footstalks; the flowers are in terminal spikes, of the papilionaceous kind; the calyx is persistent, and divided into three narrow segments; the corolla is composed of two exterior petals or wings, which are flat, and of an oval shape, a short tubular standard undivided at the mouth, and a flattened keel, distended towards the end, from whence proceeds a

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[*] Fig. *a.* part of the root. *b. c. d. e.* and *f.* The petals. *g.* The capsule. *h.* A seed. *i.* The three smaller leaves of the calyx.

[†] We are told by Mr. P. Miller there are three varieties of this species, one with blue, another with purple, and a third with white blossoms.

pencil-shaped appendage; the eight filaments are united at the base into two portions, and attached to the corolla; the anthers are tubular, and open at their summit; the germen is oblong, and supports a simple erect style, crowned with a cloven stigma; the capsule is obcordate, or inversely heart-shaped, and contains two small oblong blackish seeds.

This species of Polygala was introduced to the attention of the medical profession, about ninety years ago, by Dr. John Tennant, whose intercourse with the American Indians, led him to discover that they possessed a specific against the poison of the rattle-snake, which, in consequence of a suitable reward, was revealed to him, and found to be the root of this plant.

Sensible and Chemical Properties. Rattle-snake root has little or no odour; when chewed, its taste is somewhat bitter, warm and pungent, and excites a peculiar tingling sensation in the fauces, which lasts for some considerable time; these qualities reside in the bark, the central woody part being almost inert: both water and alcohol extract its active principles, (which appear to reside in a resinous substance), but the latter most completely. The watery infusion is pale yellow, with a weak smell, but a strong taste of the root; sulphate of iron produces no change in the infusion. The active matter taken up by alcohol is precipitated from the tincture by the addition of water; the ethereal tincture, on evaporation, leaves a similar substance. A peculiar vegetable principle has been discovered by Gehlen, in the roots of Senega, to which he gave the name of Senegin: this is obtained by treating the alcoholic extract by ether and water, the former abstracting a certain portion of resin, and the latter some mucilaginous and saccharine matter. M. Peschier has also analysed the roots of Senega, and from six ounces separated one hundred grains of a peculiar alkaline principle, which he has named Polygalina; this is united to a new acid, which he has denominated Polygaline: this salt he supposes to contain the active principle of the roots.*

Medical Properties and Uses. This is a stimulating sudorific; in small doses it is expectorant and diuretic; in larger doses emetic and cathartic. Soon after the introduction of this medicine as a specific for the bite of the rattle snake, it excited the attention of physicians as a remedial agent in the cure of many disorders. Dr.

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* It is probable the Senegin of Gehlen is identical with the Polygaline of M. Peschier.—*Ed.*

Tennant, observing that pleuritic symptoms are generally produced by the action of this poison, inferred that the rattle-snake root might also be an useful remedy in pneumonia, and some diseases related to it; he accordingly tried it, and, from the experience of himself and others, found it a useful medicine in those disorders; but on account of its stimulant properties it should not be employed till after the resolution of the inflammation by depletion and evacuations. It proves most serviceable in the advanced stages of those disorders, (when further depletion is forbid from the debility of the patient,) by promoting expectoration and relieving the tightness of the chest. It has also been prescribed with much success in dropsies and rheumatism. Dr. Cullen says, "We have had some instances of its being useful, especially where it operated by producing sweat."* We are told by Dr. Bree, that he found the decoction of Senega eminently useful in asthma, when administered to old people; but in the paroxysms of young persons he found it too irritating. In America it has been much used, and with seeming success, in croup. In this disorder it is usually given in decoction, in divided doses repeated at intervals, until it operates either as an emetic or cathartic; it is also used as a stimulant gargle in the same disease. Dr. Brandreth of Liverpool has also prescribed the extract of Senega in combination with carbonate of ammonia, with some success, in cases of lethargy.

It may be given either in powder or decoction; the former in doses of from ten grains to one drachm, the latter in doses of from one to two or three ounces three or four times a day. It is often prescribed in combination with opium, camphor, or aromatics, which check the nauseating effects it frequently produces.

Off. The Root.
Off. Pp. Decoctum Senegæ, L.

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* Mat. Med. vol. ii. p. 288.

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PRUNUS DOMESTICA.

Common Plumb Tree.[*]

Class ICOSANDRIA.—*Order* MONOGYNIA.

Nat. Ord. POMACEÆ, *Linn.* ROSACEÆ, *Juss.*

GEN. CHAR. *Calyx* five-parted, inferior. *Petals,* five. *Nut of the drupe* with prominent sutures.

SPEC. CHAR. *Peduncles* nearly solitary. *Leaves* ovate, pointed, convolute. *Branches* awnless.

THIS tree is supposed to be a native of Asia, but has been so long naturalized to Britain that it is now ranked among our indigenous plants. It is found growing wild in hedge-rows and coppices in many parts of the country, flowering in April and May. We are told by Pliny that this tree was brought from Syria into Greece, and from thence into Italy. By Dioscorides this tree was called Κοχχομηλεα, and the fruit Κοκκυμηλα, but it is uncertain from what particular variety of prune our naturalized species originally sprung.[†] Du Hamel[‡] describes forty-eight varieties of this species of Prunus, and Mayer[§] a still greater number. The Syrian plumbs were much esteemed by the ancients, particularly a variety that grew in the neighbourhood of Damascus, and hence a variety of the fruit is still known by the name of Pruna Damascena.

This species of Prunus rises to the height of fifteen or twenty feet, with spreading branches; the trunk and branches are covered with smooth bark, of a dark brown colour; the leaves are ovate, pointed, slightly serrated, veined, smooth, of a pale bright green on the upper surface, pubescent on the under side, stand upon short footstalks, which have two glands near the base of the leaf, and when young convoluted; the flowers surround the branches on short solitary peduncles; the calyx is divided into five narrow concave segments;

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[*] Fig. *a.* the fruit. *b.* The stone or nut. *c.* The kernel.

[†] Bauhin refers it to the Pruna cerea minor præcocia.

[‡] Arbes Fruit. tom. ii. page 65 sq.

[§] Pomona *Francon.* tom. i. page 110.

the corolla consists of five obovate white petals; the filaments are more than twenty, tapering, inserted into the calyx, and furnished with yellow anthers; the germen is round, and supports a simple style, crowned with a globular stigma; the fruit is a superior oval drupe, consisting of a sweet fleshy pulp, covered with a purple coloured pellicle, and including in the centre an almond-shaped nut or stone.

SENSIBLE QUALITIES, &c.—Plumbs or prunes, when perfectly ripe, have a pleasant sweetish subacid taste, but are nearly inodorous. They are composed chiefly of mucus combined with saccharine matter, and a large proportion of malic acid. Prunes lose much of their acidity by drying, and from this circumstance the dried fruit is considered more wholesome than the recent.

MEDICAL PROPERTIES AND USES. Prunes considered medicinally are emollient, cooling and laxative; and form a pleasant addition to purgative decoctions and electuaries. They are found to be peculiarly useful in costive habits, and may be taken *ad libitum*, either in their dry state, as they are met with in the shops, or boiled down to a soft pulp, in which state they form an useful laxative for young children. The recent fruit when perfectly ripe, and taken in a moderate quantity, proves a pleasant and wholesome food; but in an immature state, or when taken too freely, is very liable to produce diarrhœa, colic, &c.

Off. The dried Fruit.

AGRIMONIA EUPATORIA.

*Common Agrimony.**

Class DODECANDRIA.—*Order* DIGYNIA.

Nat. Ord. SENTICOSÆ, *Linn.* ROSACEÆ, *Juss.*

GEN. CHAR. *Calyx* five-toothed, guarded by another. *Petals* five. *Seed* two, in the bottom of the calyx.

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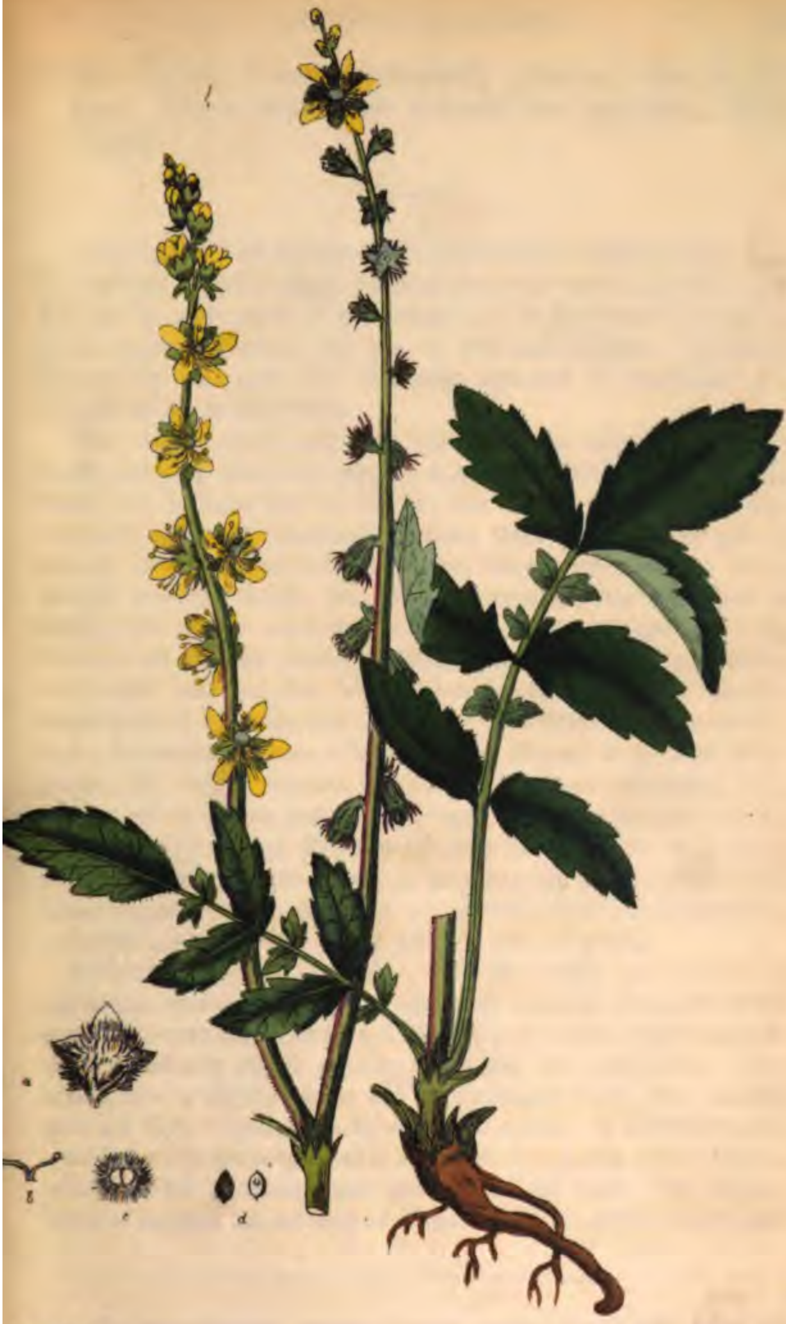
* Fig. *a.* the calyx. *b.* The styles and stigmata. *c.* The capsule. *d.* Seeds.



G. Spratt del. et lith.

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Agrimonia Eupatoria.

Spec. Char. *Leaves* interruptedly pinnated, with an odd one. *Pinnæ* sessile, the terminal one petiolate. *Fruit* hispid.

This species* of Agrimony, the Εὐπατωρία of Dioscorides, is an indigenous perennial plant, common about the borders of fields and hedges in most parts of this country; it is also found not only in many parts of Europe, but also in Asia and America. Agrimony flowers in June and July, and when gathered for medicinal use should be cut in full flower.

The root is scaly, and of a reddish brown colour; the stalk is erect, round or somewhat angular, hairy, of a reddish hue, and rises from one to three feet in height; the leaves are alternate, interruptedly pinnated, composed of from three to five or six pair of pinnæ, and a terminal one; the leaflets are opposite, sessile, ovate, deeply serrated, rough; the small intermediate ones are entire or trifid; the stipulæ are two, opposite, serrated and spreading; the flowers are in long terminal spikes, supported on short peduncles, with trifid bracteas; the calyx is permanent, and divided into five ovate pointed segments, and surrounded with rigid hairs; the involucrum is composed of two indented leaves, situated at the base of the germ; the corolla consists of five petals, ovate, spreading, of a golden yellow colour, and inserted into a glandular substance at the base of the germ; the filaments are from five to twelve, supporting two-lobed anthers; the germen is inferior; the styles crowned with blunt stigmas; the capsule is formed of the calyx, and contains two roundish, smooth seeds, one of which is often abortive.

Sensible Qualities, &c. Both the leaves and flowers of agrimony, when recent, have an agreeable aromatic odour, the latter somewhat more powerful than the former; the smell, which depends upon a volatile oil, is entirely dissipated by exsiccation. The leaves have a slightly bitter and subastringent taste; they readily give out their virtues both to water and spirit. In distillation with water, a small quantity of oil is obtained, of a golden yellow colour, which smells agreeably and strongly of the herb. The watery infusion reddens the infusion of turnsol. Potass and its carbonates

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* The genus Agrimonia comprises but few species, six only being known and cultivated in our gardens.—*Ed.*

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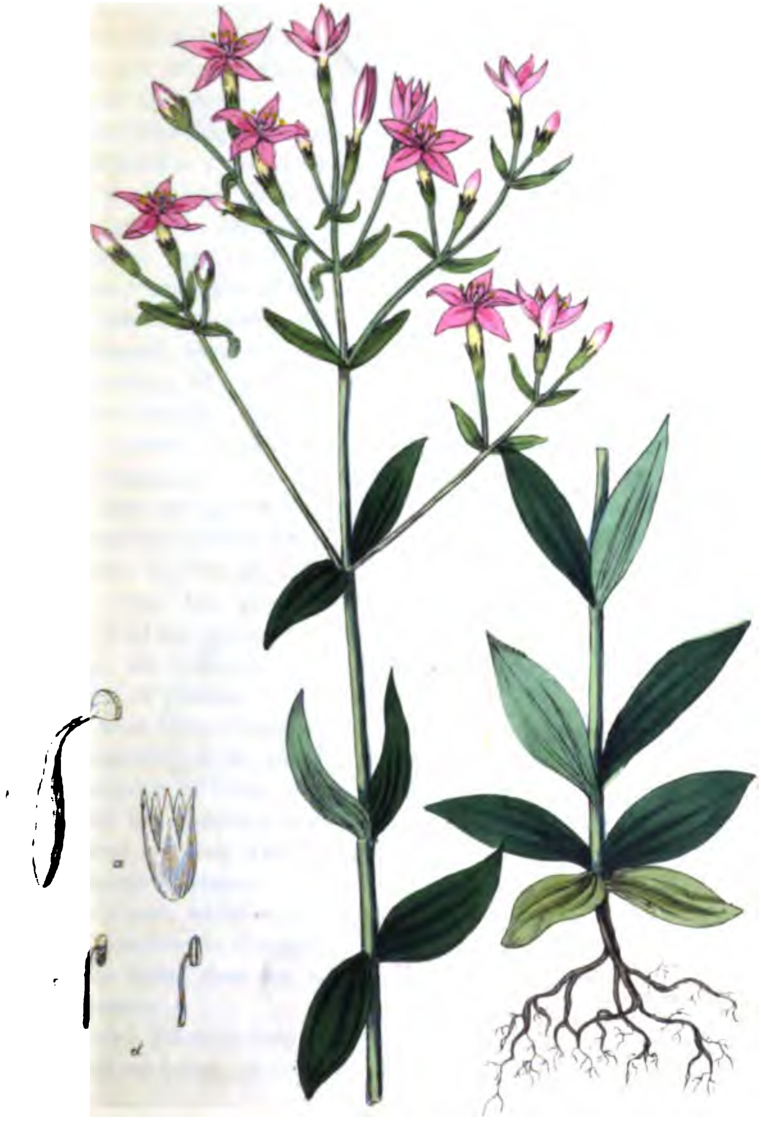

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Chironia Centaurium

tions it usually acquires a greater height;"* it is frequently met with in the neighbourhood of London, about Charlton and Combe Wood, flowering in July and August.

The root is woody, fibrous and of a yellowish colour; the stalk rises erect to about a foot in height, smooth, angular, generally simple, but sometimes with a few branches; the flowers are terminal, and produced in a corymbus or bunch; the calyx a perianthum of one leaf, permanent, about half the length of the tube of the corolla, five-cleft, with the segments subulate and erect; the corolla is of a pink colour, monopetalous, funnel-shaped, the tube cylindrical, striated and extremely thin, the limb is divided into five elliptical equal segments, spreading and slightly concave; the filaments are thread-shaped, somewhat bent down, and furnished with oblong, twisted anthers, of a yellow colour; the germen is oblong, filling the tube of the corolla; the style is about half the length of the germen, sometimes bifid; stigma clubbed, composed of two lips and villous; capsule oblong, pointed, shining, covered by the tube of the corolla, divisible into two parts, with a cavity in each, containing numerous small, roundish, yellow seeds. We learn from Pliny,† that centaury has its name Κεντaυριον from Chiron the Centaur; it was classed by Linnæus with the gentians, but more modern botanists have removed it to the genus Chironea, to which it appears more properly to belong, its botanical character exactly corresponding with the latter tribe of plants.

SENSIBLE QUALITIES, &c. This plant is almost inodorous, but has an extremely bitter and disagreeable taste, whence the ancients denominated it *fel terræ*, or gall of the earth. The active parts of this plant are dissolved readily both by water and rectified spirit; water takes up along with the bitter a large quantity of an insipid mucilaginous substance; rectified spirit dissolves little more than the pure bitter part, which appears to be resin. Hence, on inspissating the two solutions to the same consistence, the watery extract proves much less bitter than the spirituous, and its quantity above four times greater.

MEDICAL PROPERTIES AND USES. Centaury is justly esteemed an efficacious bitter; it is tonic, stomachic and antiseptic,‡ and in addition to these qualities often proves mildly cathartic;[*] this plant was much used in febrile disorders previous to the knowledge of Peruvian bark, which now supersedes it too generally: for many cases of fever are found to be aggravated by the Cinchona, yet readily yield to simple bitters, of which, the centaury is equal, if not superior, to most, and will be found to supply the place of more expensive exotics. In dyspeptic complaints, and weaknesses of the stomach and digestive organs it is an useful remedy. It has also been given with the same success in chlorosis, gout,[†] worms, scurvy, &c. It is given in powder in doses of from thirty to sixty grains, and in infusion (made by macerating two ounces of the dried tops in one pint of boiling water) in doses of one or two ounces three or four times a day.

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* Curtis, Flora Londinensis.

† Plin. lib. xxv. c. 6, p. 635.

‡ Vide Pringle, Diseases of the Army, App. p. 66.

Off. The flowering Tops.

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ANETHUM GRAVEOLENS.

Common Dill.[‡]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ, *Linn. Juss.*

GEN. CHAR. *Fruit* nearly ovate, compressed, striated. *Petals* involuted, entire.

SPEC. CHAR. *Fruit* compressed.

THIS plant is a native of Spain and Portugal, flowering in June and July; it is common in the corn fields of those countries. It is said to have been first cultivated in Britain by Gerarde, in 1597. We

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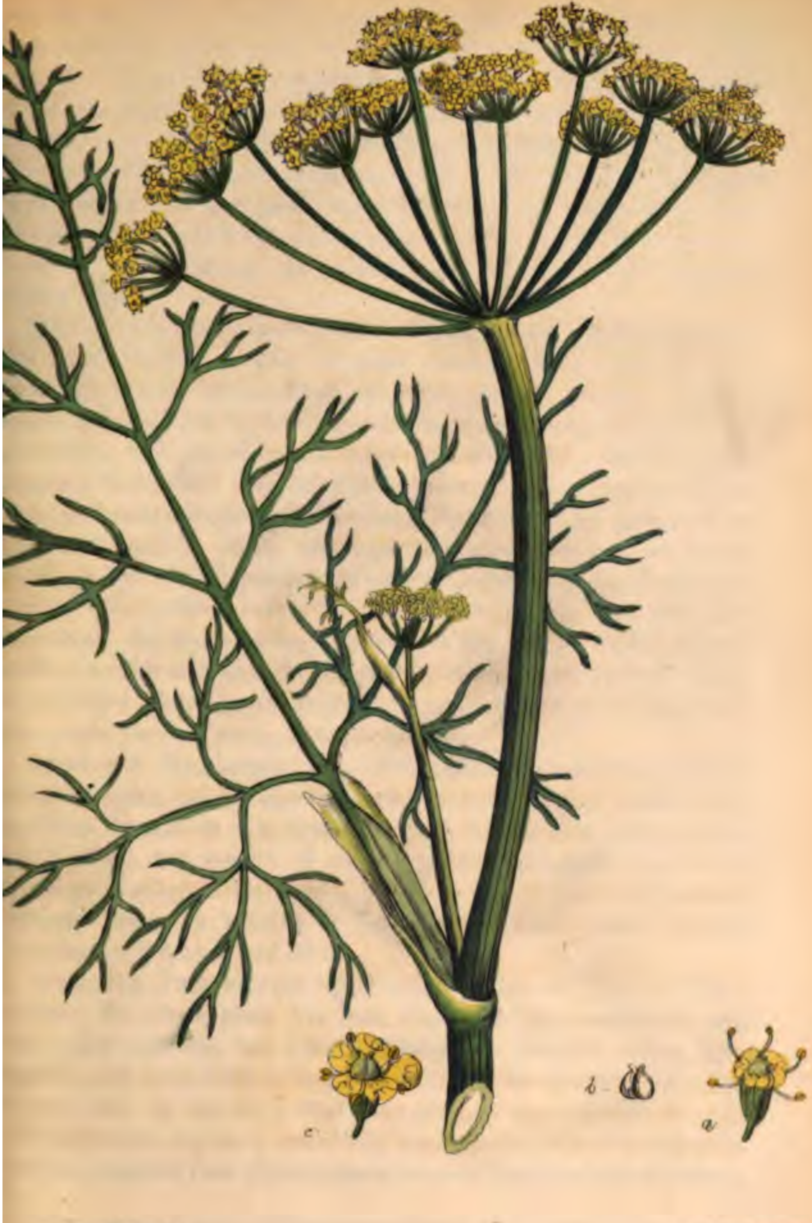
[*] When given in considerable doses. *Ed.*

[†] Centaury formed one of the ingredients in the celebrated Portland powders. *Ed.*

[‡] Fig. *a.* the corolla magnified. *b.* The germen and styles. *c.* The corolla of the fennel.



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Anethum Graveolens.

are told by Miller,* that this plant is propagated by sowing the seeds in autumn soon after they are ripe, for if they are kept out of the ground till spring they frequently miscarry; or if any of the plants do come up they often decay before they have perfected their seeds. They love a light soil, and will not bear to be transplanted, but must be sown where they are to remain; for if the plants be removed they will not produce good seeds; therefore, the best way is, when the plants are come up to hoe them out as practised for onions, carrots, &c. leaving the plants eight or ten inches asunder every way.

The root is long, tapering, of a whitish colour, striking deep into the ground, and sending off many strong fibres: from the root proceed several stems, which are erect, smooth, striated, jointed, branched, and rise to the height of about two feet; the leaves are alternate, and placed at the joints of the stalks, standing upon sheathy footstalks: they are doubly pinnated, with the pinnæ linear and pointed, smooth and glaucous; the flowers are produced in terminal umbels, which are large, flat, and composed of several radii; it has neither general nor partial involucrum; the corolla consists of five yellow, ovate, obtuse, concave petals, with the apex inflected; the filaments are longer than the corolla, and furnished with roundish anthers; the germen is inferior and covered by the nectarium; the styles are very short, terminated by obtuse stigmata; the seeds are two, ovate, flat and striated.

SENSIBLE QUALITIES, &c. Dill seeds have a moderately warm pungent taste, and an aromatic and somewhat fragrant smell: these qualities depend on an essential oil which they contain; four pounds yield about two ounces of oil, having the taste and odour of the seeds in a concentrated degree. Water extracts very little of their virtues, either by infusion or digestion for many hours; alcohol extracts both flavour and odour.

MEDICAL PROPERTIES AND USES. From the time of Dioscorides the whole plant has been much used as a carminative and stomachic medicine, and greatly esteemed in flatulent colics, dyspepsia, and complaints arising from laxity of the stomach, &c.; and we are told by Murray,† that they promote the secretion of milk. In the present day they are chiefly used (in the form of the distilled water, prepared from them) in flatulent colic and hiccough of infants, in quantity proportioned to the age of the patient. The dose of the powdered seeds, when given to adults, is from twenty grains to one drachm.

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* Gard. Dict.

† App. Med. vol. i. p. 289.

Off. The Seed.
Off. Pp. Aqua Anethi, L.

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ANETHUM FŒNICULUM.

*Common Fennel.**

For CLASS, ORDER, and GEN. CHAR.
see preceding Article.

SPEC. CHAR. *Fruit* ovate.

THIS species of Anethum is a biennial plant, a native of the South of Europe, but has been long naturalized to Britain, growing wild on dry chalky soils. It is also much cultivated for medicinal and culinary purposes, flowering in July and August. The root is white, fibrous and tapering, three or four stems often rise from the same root, and are from three to four feet in height, branched, round, striated, jointed, leafy, and of a glaucous tinge; the leaves are tripinnate, composed of long, smooth, depending, linear leaflets of a deep green colour, and stand alternately at the joints of the stems; the flowers are produced in terminal umbels; there are no involucra; the corolla consists of five ovate, emarginated petals of a yellow colour, and their points turned inwards; the filaments are spreading, shorter than the petals, and bear double anthers; the germen resembles that of dill; the seeds are two, ovate, very little compressed, three-ribbed, and encircled with a membranous margin.

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* This plant being so well known, we thought it would be quite superfluous to figure it, more especially as it bears so near a resemblance to the Anethum Graveolens; on the plate of which we have figured (see Fig. o.) the corolla of the fennel, to shew the difference of the two species.

There are two or three varieties of this plant. The officinal Fœniculi Semina of the London, Edinburgh and Dublin Colleges, are the produce of the variety indigenous to the South of Europe, and are imported from Italy. The roots are the produce of our wild and cultivated species, and are taken up in spring for use.

SENSIBLE QUALITIES, &c. The roots have little or no odour, and a slight aromatic and sweetish taste. The seeds are fragrant and have a warm sweet taste; these qualities depend upon the essential oil they contain, which on distillation with water, separates and swims upon the surface. Both the flavour and odour of the seeds are imparted to alcohol. Boiling water extracts these qualities very imperfectly. The watery infusion is somewhat aromatic and not altered by sulphate of iron. The distilled water is aromatic and milky. Seventy-five pounds of seed yield about thirty ounces of colourless oil, with the smell and taste of the seed; it congeals and becomes like butter at 20° Fahr.* These seeds contain, likewise, a considerable quantity of a gross, insipid, inodorous, fixed oil.

MEDICAL PROPERTIES AND USES. Fennel was esteemed by Greek physicians as a medicine possessing considerable powers, particularly for promoting the secretion of milk,† and also as a resolvent, diuretic, stomachic, and carminative. Boerhaave supposed the root to possess aperient qualities. In modern practice the plant is altogether nearly disregarded. The seeds (the officinal part of the plant) are carminative and stomachic, but certainly less so than either the dill, carraway, or aniseed; hence the preference is given to them, and fennel is seldom prescribed but in the form of the distilled water of the London Pharmacopœia, which forms a pleasant vehicle for rhubarb, manna, &c. when given to infants. The seeds may be given (when bruised) in doses of from half a drachm to a drachm.

Off. The Seed.
Off. Pp. Aqua Fœniculi, L. D.
Oleum Fœniculi, D.

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* Gray's Elements.

† Hippoc. De Morb. Mul. lib. i. sect. 5, p. 608, Foes. Dioscorid. M. M. lib. iii. c. 81, p. 205, Sarac.

MYRISTICA MOSCHATA.

The Nutmeg Tree.[*]

Class DIŒCIA.—*Order* MONADELPHIA.

Nat. Ord. LAURI, *Juss.*

GEN. CHAR. Male. *Calyx* bell-shaped, trifid. *Corolla* none. *Filaments* united into a columnar tube. *Anthers* six or ten cohering.

Female. *Calyx* bell-shaped, trifid, deciduous. *Corolla* none. *Style* none. *Stigma* two. *Seed* solitary, inclosed in a coriaceous arillus (mace).

SPEC. CHAR. *Leaves* elliptic, oblong, pointed. *Perianth* of one leaf, coriaceous.

THIS tree is a native of the Molucca Islands. It was unknown to Linnæus,[†] and was first described by Thunberg. Wildenow in describing this tree says, "habitat in Moluccis;" but we are told by Alibert[‡] that it is also a native of America. Its cultivation is chiefly confined to Banda, which includes six small islands, Pulo-Aya, Goenenga, Apia, Lenteira, Polerona, and Rosfengenia. It is also cultivated in Sumatra, where a great quantity is reared, sufficient we are told to supply the whole of Europe with nutmegs and mace.

This tree rises to the height of about thirty feet, and in appearance resembles a pear-tree, producing many erect, spreading branches, which, as well as the trunk, are covered with a smooth, ash-coloured bark, abounding in a reddish, glutinous juice, which

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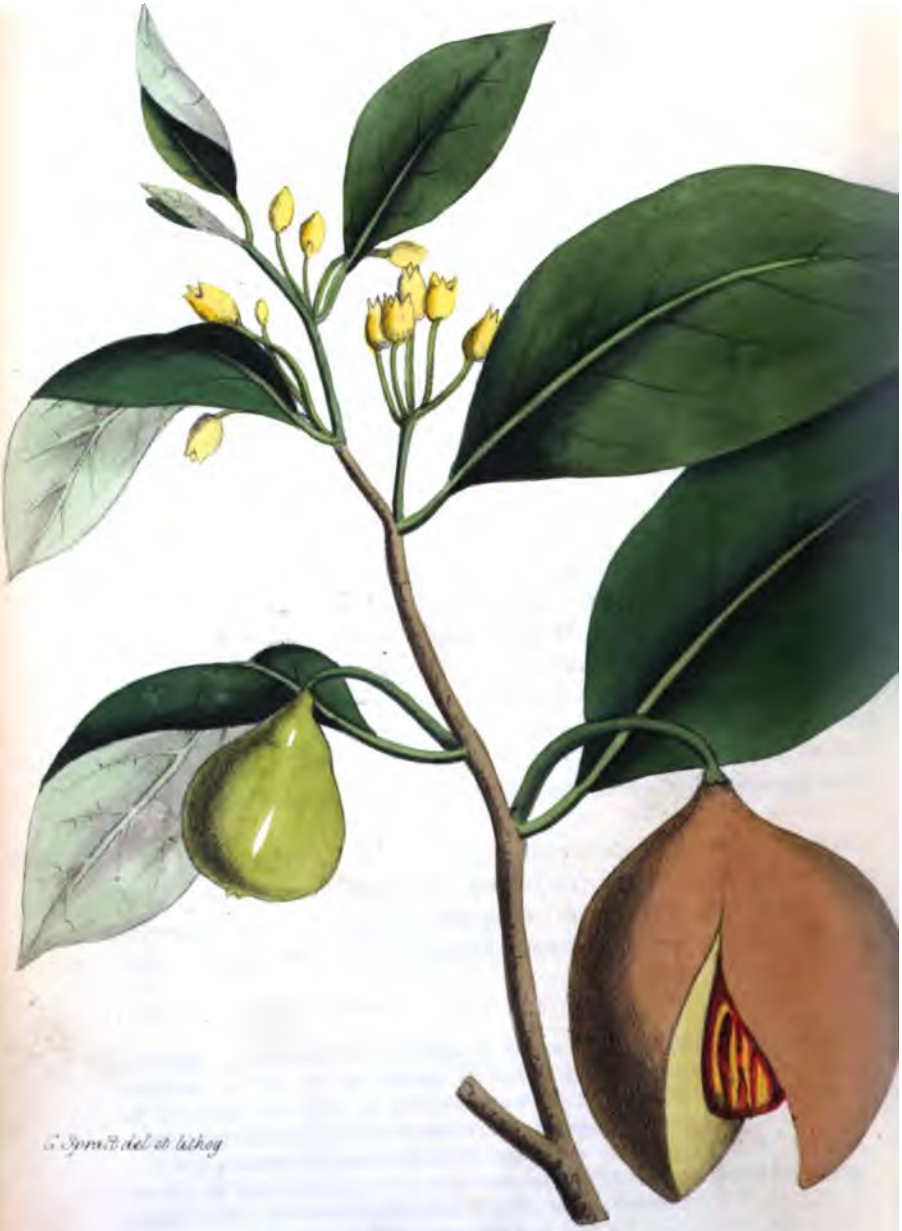
[*] Fig. *a.* section of the ripe fruit. *b.* The mace from which the nut has been removed. *c.* The seed or nutmeg. *d.* Vertical section of the nut. *e.* Two views of the embryo magnified. *f.* A female flower cut open to shew the pistillum. *g.* A male flower cut open, shewing the anthers. *h.* A magnified anther.

[†] It is probable our knowledge of the nutmeg tree was derived from the Arabians, but that the Μυροβαλανος of Galen, or the Κώμακον of Theophrastus, should be, as supposed by many, the tree we are about to describe, is very doubtful.

[‡] Nouveaux Elémens de Thérapeutic, vol. ii. p 219.



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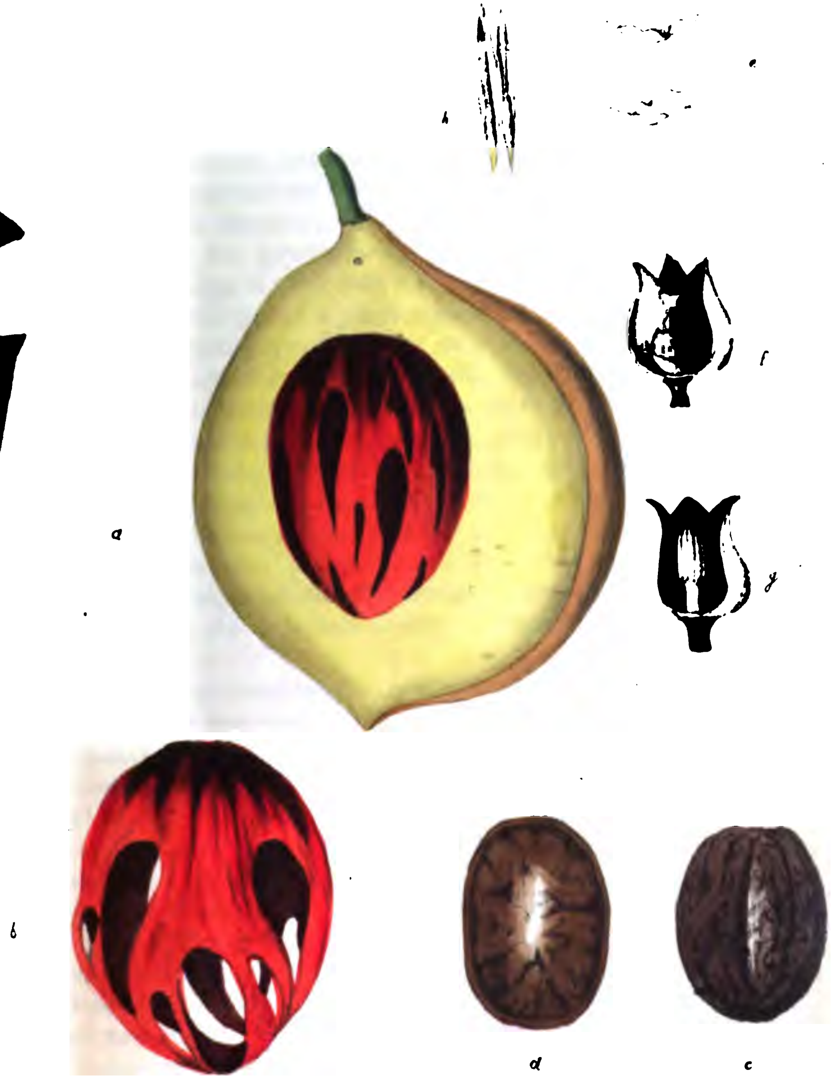

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Myristica Moschata

exudes when the bark is wounded; the leaves have an aromatic smell, are elliptical, pointed, undulated, entire, from three to five inches long, of a bright green colour on the upper surface, greyish underneath, and stand on short petioles placed alternately on the branches; the flowers are inodorous, and are present at the same time with the fruit. The male and female flowers are on the same or separate trees; the calyx is thick and fleshy, and divided into three spreading, pointed segments; there are no corollas; the filaments in the male flowers are united into a cylindrical column, inserted into the receptacle; the anthers are linear, two-celled, and surrounding the upper half of the filaments. The female flowers in appearance resemble the male; the germen is superior or ovate; style short, terminated by two stigmas; the fruit is an elliptico-spheriodal one-celled berry, nearly the size of a peach, smooth, fleshy, and marked with a shallow longitudinal groove on one side: the fleshy substance of the fruit abounds with an astringent juice, and finally dries up into a coriaceous crust, when it opens on one side and presents the nutmeg in its shell, surrounded with its arillus, which is the officinal mace; the arillus is fleshy, coriaceous, of a golden yellow or scarlet colour when recent, changing to a reddish brown as it becomes dry; the kernel, *i. e.* the nutmeg, is of a roundish or ovate form, marked on the outside with many vermicular furrows, within of a fleshy, albuminous substance, variegated with reddish brown veins, abounding with oil; near the base is a cavity, in which is situated the embryo.

There are several species of this tree, and we are told by Dr. Ainslie,[*] that an inferior and long-shaped kind of a nutmeg is common in the Island of Borneo; and there is a wild sort (*Cāt Judicāi*) frequently to be met with in some of the woods of Southern India, especially in Canara, which Dr. Buchanan thinks might be greatly improved by cultivation. The true nutmeg tree now grows to a tolerable size in certain sheltered situations in the Tinnivelly district, especially Courtalum, and bears pretty good fruit. From Mr. Moon's Catalogue of Ceylon plants, we learn that several species of Myristica grow in that island, of which the true nutmeg is one, and known by the Singhalese name of *Sadikka*. Mr. Crawford, in his History of the Indian Archipelago, informs us that there are no less than eight cultivated varieties of the tree in the Indian Islands; and according to De Comyn (see his State of the Philippine Islands, p. 28) two sorts grow in that island, one shaped like a pigeon's egg, the other perfectly spherical.

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[*] Materia Indica.

The nutmeg tree produces fruit at the age of seven years; at fifteen it is in the greatest state of productiveness; and, in the Molucca Islands, it continues to bear till it has attained the age of seventy or eighty years, yielding three crops annually: the first in April, the second in August, and the third (which is considered the best) in December. The fruit requires nine months to ripen, so that the flowers and fruit are seen on the tree in various stages of maturity at the same time.

" The Dutch having possession of the spice islands in 1619, encouraged, to the utmost of their power, the cultivation of the nutmeg in a few of them; and were anxious, for the sake of the monopoly, to have them there so exclusively, that they either destroyed them themselves in the remainder of the islands, or kept the princes in their pay for the purpose of doing so. In fact, they pursued the same line of policy with the nutmeg, as has already been described with regard to the clove, under that article. They have more than once suffered dearly for their insatiable avarice, for the dreadful hurricanes and earthquakes, which spared other islands, nearly annihilated the nutmegs of Banda in 1778; so that the Dutch were only able to have a few supplies for several years afterwards. While the Dutch remained undisputed possessors of the spice islands, the quantity of nutmegs and mace exported from their nutmeg-grounds, circumscribed as they were, was truly enormous. Stavorinus, in his valuable Voyage to the East Indies, gives an excellent account of the commercial history of this spice. A quantity estimated at no less than 250,000 pounds annually, used to be vended in Europe, and nearly half that amount in the East Indies. Of *mace* the average has been 90,000 pounds sold in Europe, and 10,000 pounds in the East Indies. When the spice islands were taken by the British, in 1796, the importation of the East India Company into England alone, in the two years following the capture, were, of nutmegs 129,732 pounds, and of mace 286,000 pounds. When the crops of spice have been superabundant, and the price likely, in consequence, to be reduced, the same contracted spirit has actuated the Dutch to destroy immense quantities of the fruit, rather than suffer the markets to be lowered. A Hollander, who had returned from the spice islands, informed Sir William Temple, that at one time, he saw three piles of nutmegs burnt, each of which was more than a church of ordinary dimensions could hold. In 1760, M. Beaumaré witnessed at Amsterdam, near the Admiralty, the destruction by fire of a mass of spice, which was valued at one million livres, and an equal quantity was condemned to be burnt the day following; and Mr. Wilcocks, the translator of Stavorinus's Travels, relates, that he himself beheld such a conflagration of cloves, nutmegs, and cinnamon, upon the little Island of Newland, near Middleburgh, in Zealand, as perfumed the air with their aromatic scent for many miles round.

"M. Poivre had the honour of introducing this valuable plant into the Isles of France and Bourbon, in 1772, together with the clove; thence by the liberal policy of the French, it was sent to Guiana, and to the West India Islands.

"In 1796, the British took possession of the Molucca Islands, and two years afterwards planted the nutmeg at Bencoolen, in Sumatra, where it is grown in the greatest luxuriance; so that in five years, the two had arrived from ten to fourteen feet in height, and in October and November, 1802, two hundred and forty-seven trees, out of about six hundred, blossomed: about half of these were male, and the rest female. A second importation was made to that island, by the assistance of the Bengal government; and the son of Dr. Roxburgh arrived there with twenty-two thousand nutmeg plants from Amboyna, which, in a few years, yielded 200,000 pounds weight of nutmegs, and 50,000 pounds of mace.

"In the Moluccas, the Dutch appear to have been totally ignorant of the diœcious nature of the trees, and of the cause of sterility in so many of them. Where the trees are very abundant this is a matter of comparatively trifling importance, but in colonies where but few plants have been introduced, it is not only of essential consequence that the female flowers should be fertilized by the male, but that the male plants should be employed in the most economical manner. This has been achieved by M. Joseph Hubert, in the Isle of France, in the most successful manner. Ascertaining that one male plant is sufficient for a hundred females, he resolved upon grafting the seedling stock of all his plantations in that proportion, in the second year of their growth: by this means there are no superfluous trees, and they come into bearing the sooner. According to the old method, the trees did not bear flowers till the seventh or eighth year, and it was not till that period that the useless trees could be removed.

"In our West India colonies the nutmeg was introduced about thirty years ago; and first, to the island of St. Vincent from Cayenne, though not without great difficulty, on account of the extreme jealousy of the inhabitants of that colony, the two countries being then at war with each other. The three trees which were originally imported have borne fruit for many years, and have attained the height of twenty feet, with a trunk eight or nine feet in diameter. It does not, however, appear that the culture of the nutmeg succeeds so well in the West as in the East Indies. Mr. Lockhart, who has the charge of the plants introduced into the Island of Trinidad, by his Excellency Sir Ralph Woodford, observes in a letter to me, that the plants flourish best in the rainy season; even when moderate showers fall requiring constantly artificial watering, although a soil saturated with moisture is injurious.

"In the Moluccas, the gathering of the fruit takes place at three periods of the year: in July and August, when the nutmegs are most abundant, but the mace is thinner than in the smaller fruits, which are gathered during November, the second time of collecting; the third, however, takes place in the month of March, or the beginning of April, when the nuts, as well as the mace, are in the greatest perfection, their number being then not so great, and the season being dry. The outer pulpy coat is removed, and afterwards the *mace* with a knife. The nuts are placed over a slow fire, when the shell becomes very brittle, and the *seeds* or *nutmegs* drop out; these are then soaked in sea water and impregnated with lime, a process which answers the double purpose of securing the seeds from the attack of insects and of destroying their vegetating property; and it also prevents the volatilization of the aroma. The mace is simply dried in the sun, and then sprinkled with salt water, after which it is fit for exportation." *

We are told by J. Lumsdaine, Esq.† that at Bencoolen they are simply rubbed over with dry lime; after which they are cleaned and packed up in casks and chests, smoked, and covered within with a coating of lime and water.

Qualities and Chemical Properties.—Nutmegs have a pleasant fragrant smell and a warm aromatic taste; when chewed they are friable and almost dissolve in the mouth. They are easily cut with a knife, but not very pulverulent, owing to the large proportion of fixed oil they contain, which is the active matter of the nutmeg. The watery infusion is limpid, yellowish, having drops of oil swimming on the surface. On expression, nutmegs yield nearly six ounces in the pound, of a butter-like oil,* of a yellowish colour when recent, but changing to a mottled white, and becoming hard by age. This oil is fat, easily melted, and on bringing a candle near it the melted oil takes fire, burning with a vivid, broken flame, with scarcely any smoke or soot. Nutmeg yields also on distillation with water about $\frac{1}{32}$ part of their weight of an essential oil, limpid, transparent, lighter than water, and of a pale straw colour, possessing the odour and flavour of the nutmeg in a concentrated degree. Rectified spirit extracts the whole virtues of nutmegs by infusion, but carries over very little of it in distillation. The component parts of nutmeg, according to the analysis of Neumann, are starch, gum, wax, volatile oil, and fixed fat oil; the last appears to be a vegetable cerate, or a triple compound, consisting of wax, volatile oil, and fixed oil. The genuine oil of nutmegs, or, as it is commonly called, oil of mace, is frequently adulterated, and a spurious sort is sold in the shops, which contains very little, if any, of the genuine oil, but is chiefly composed of fatty substances, combined with a little of the essential oil to give it a flavour.

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* Curtis's Botan. Mag. N. S. vol. i.

† See his report on the Cultivation of Spices at Bencoolen, &c. Edin. Phil. Journ. vol. vii. p. 127.

MACE in its taste and odour resembles that of nutmeg, but is somewhat more pungent and bitter, of a reddish brown or golden yellow colour, tough, laciniated, flexible, thin, and unctuous to the feel; alcohol and ether extract its active principles.

MEDICAL PROPERTIES AND USES. Both nutmegs and mace are cordial, stimulant, carminative and gently astringent; these properties depend entirely upon the essential oil they contain. They are sometimes ordered in diarrhœa, flatulent colic, languors, and to check nausea and vomiting; but they are chiefly employed as an adjunct to other medicines to cover their disagreeable taste, and obviate the griping effects of drastic purgatives. Nutmeg when taken in large quantities produces drowsiness, stupor, and insensibility,† followed by delirium; similar symptoms are said to follow an over dose of mace: hence in some particular habits, and in those predisposed to apoplexy, nutmeg and mace should be cautiously prescribed. Both the expressed and volatile oils are sometimes employed as external stimulants; the former is seldom prescribed for any other purpose. A drop or two of the latter put into the hollow of a carious tooth often relieves the pain of tooth ache.

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* This oil is erroneously called oil of mace.—*Ed.*

† Cullen's Mat. Med. vol. ii. 204. Bontius also speaks of their narcotic effects, which in India have been frequently felt.

Mace and nutmeg are given in doses of from five to twenty grains; that of the volatile oil is from two to six or eight drops.

Off.	Nutmeg; Mace; Oil of Nutmeg, Essential and Expressed; Oil of Mace.
Off. Pp.	Spiritus Myristicæ, L. E. D.

◆

HUMULUS LUPULUS.

The Hop.[*]

Class DIŒCIA. *Order* PENTANDRIA.

Nat. Order. SCABRIDÆ, *Linn.* URTICÆ, *Juss.*

GEN. CHAR. Male. *Calyx* five-leaved. *Corolla* none. Female. *Calyx* one-leafed, obliquely spreading, entire. *Corolla* none. *Styles* two. *Seed* one, within a leafy calyx.

SPEC. CHAR. 0.

THE HOP is an indigenous perennial rooted plant, with an annual stem flowering in June and July, and ripening its seeds in September. The male plant is very common in many parts of England, and found growing on banks and the sides of hedges. The female plant is very abundantly cultivated in Kent, Essex, Suffolk and Surry,

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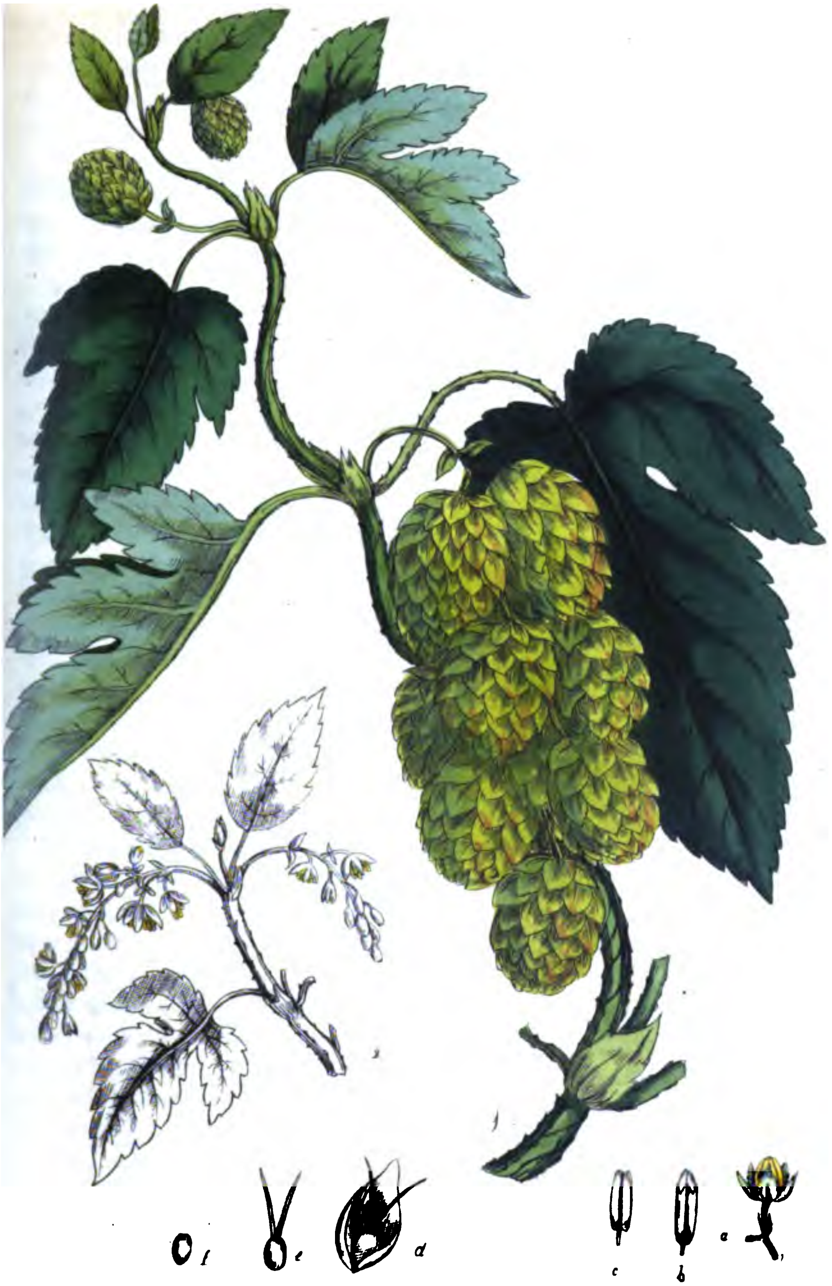
[*] Fig. 1. represents the female plant. 2. The male plant. a. A male flower magnified. b. and c. Two views of a magnified anther. b. The front, shewing the pores of the top. c. The back view. d. A single scale of the catkin. e. The pistillum. f. A seed.



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Humulus Lupulus.

There is but one species of the hop, but the cultivators of the female plant reckon three different varieties, viz. the long and square garlick, the long white, and the oval hop, all of which are indifferently cultivated.*

The cultivation of this plant was introduced into England from Flanders about three hundred years ago; and the strobiles were first used as an ingredient for preserving malt liquor, in the latter part of the reign of Henry VIII.

The root sends up many long, flexible, angular, rough, striated stems, which often rise to the height of twenty feet, and support themselves by twining round upright bodies; the leaves are opposite in pairs, petiolate, cordate, serrated, entire, or lobed, of a dark green on the upper surface: both the leaves and petioles are rough, with minute prickles; at the base of each footstalk are two cordate, entire, reflected, smooth stipules; the male and female flowers are on distinct plants, axillary or terminal, and furnished with bracteas. The female plants are in solitary, ovate, pendulous cones or strobiles, composed of membranous scales of a pale yellowish-green colour, tubular at the base, and two-flowered, containing the germen, supporting two styles, crowned with awl-shaped downy stigmas; the germen becomes a flattish round seed of a brownish colour, surrounded with a sharp rim, and compressed at the tip. The male flowers are in drooping panicles of a pale yellowish colour; the calyx consists of five serrated leaflets; there is no corolla; the filaments are five, short, and support oblong anthers, opening at the apex by two pores.

The strobiles or cones of the female plants are ripe the latter end of August or beginning of September, at which season the plants are cut about three feet from the ground, the poles on which they have twined pulled up, and the strobiles carefully picked off one by one. The most convenient mode of picking them is into a large square frame of wood, called a bin, with a cloth hanging on tenter hooks within it, to receive the hops as they are picked. The hops should be picked very clean, *i. e.* free from leaves and stalks. If the weather be hot, there should no more poles be drawn than can be picked in an hour, when the hops should be immediately carried to the kiln to dry. Great care and nicety is requisite in regulating the proper heat of the kiln, which must not be too fierce at first; and in order to prevent them from drying too fast, some kilns have two floors, on the upper of which the greener hops are laid, and gradually dried before being brought to support the heat of the lower floor. When the strobiles are sufficiently dried, which may be known by their becoming crisp, they are removed from the kiln, and laid in heaps in the store-houses, where they are suffered to remain for several weeks, to acquire toughness and tenacity before they are bagged. Hops when well dried and packed will keep good and retain their active properties for several years.

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* Miller.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Hops have a peculiar fragrant and somewhat narcotic odour, and a bitter, slightly astringent taste; these qualities are extracted by boiling water, alcohol, or ether. The watery infusion is of a pale straw colour, turning olive by sulphate of iron, muddy by mineral acids, and yielding a precipitate with spirit of wine, acetate of lead, nitrate of silver, and tartarized antimony. "When rubbed with magnesia, or lime, a rod dipped in muriatic acid, discovers the presence of ammonia. The ethereal tincture, when evaporated on water, leaves a pellicle of greenish, intensely bitter resin, and deposits some extractive."* Distilled with water, hops yield an essential oil, and the decoction by evaporation furnishes a bitter extract.

Dr. Ives, of New York, has ascertained by some experiments that the active properties of hops reside in a substance which forms about one-sixth part of their weight, and which is readily separated by merely sifting through a fine sieve; to this substance Dr. Ives has given the name of Lupulin,† which by analysis he found to contain five grains of tannin, ten of extractive matter, eleven of bitter principle, twelve of wax, thirty-six of resin, and forty-six of lignin, is about one hundred and twenty grains. Hops from which all the Lupulin had been separated, when acted upon by water or alcohol, yield an extract devoid of the virtues of the hops.

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* Thomson.

† It had been described in France by M. Planche, and more recently by MM. Chevallier and Payen, under the name of Matière jaune du houblon.

MM. Payen and Chevallier found the cones of the French hop to consist of the following substances:—1. water; 2. an essential oil; 3. superacetate of ammonia; 4. carbonic acid; 5. a white vegetable matter, soluble in boiling water (which when precipitated, on cooling, does not redissolve in that fluid); 6. malate of lime; 7. albumen; 8. gum; 9. malic acid; 10. resin, a peculiar green matter, the bitter principle of the hop; 12. a fatty matter; 13. chlorophylle; 14. acetates of lime and ammonia; 15. nitrate, muriate, and sulphate of potass; 16. subcarbonate of potass; 17. carbonate and phosphate of lime; 18. traces of phosphate of magnesia; 19. sulphur; 20. oxide of iron; and 21. silica. The Belgic and English hop, subjected to similar trials, yielded the same principles, but in different proportions. The French contained more essential oil than the Belgic, and less than the English. Hops, soon after picking, yield *cæteris paribus*, more essential oil, and less resin than the old, a circumstance which induced MM. Payen and Chevallier to think that the oil is capable of being resinified.—*Journal de Pharmacie*, Juin 1822.

Lupulin presents itself under the form of small, shining, yellowish grains, which cover the base of the scales of the hop. It is of a golden colour, pulverulent, and of an aromatic odour. M. Planche purifies Lupulin by the following method: "To separate the sand from Lupulin, put it into water; shake it for a few minutes; decant that which is held in solution by the water, and a dark coloured sand is deposited. Repeat the process several times, and spread the Lupulin, which is insoluble in water, on bibulous paper; let it drain, and then dry it in the air, neither exposed to the sun, nor to a temperature above 76° Fahr. It should be prepared yearly, and this cleansing process must be quickly conducted, or it will undergo a change."

Medical Properties and Uses. Hops are narcotic, tonic, and diuretic; their suporific powers are however uncertain. They are said to possess the power of procuring sleep in the delirium of fever, and in mania, when used as a pillow. We are told by Dr. Maton,* that, "besides allaying pain and producing sleep, the preparations of hops reduce the frequency of the pulse, and increase its firmness in a very distinct manner. One drachm of the tincture, and four grains of the extract, given once in six hours, reduced the pulsation from ninety-six to sixty, in twenty-four hours." He also found the extract exceedingly efficacious in allaying the pain of articular rheumatism. Dr. Ives observes, "every accurate observer must acknowledge that they possess little merit, if administered according to the directions given in our pharmacopœias. The quantity of proof spirit given in the tincture would produce stimulating effects, independent of any properties which it imbibes from the hops;† and although its action may be modified by their combined agency, so as in some measure to increase the cordial and invigorating influence of the alcohol, it is difficult to conceive, that the tonic or narcotic virtues of the hop, should be sufficiently concentrated to produce much remedial benefit. It is otherwise with the pharmaceutical preparations of the Lupulin, which I have been accustomed to prescribe. Pretty extensive observation has confirmed my former opinion, that diseases which are the consequence of exhausted excitability, or more directly of a deranged state of the stomach and bowels, are certainly much relieved by this medicine. It frequently induces sleep and quiets nervous irritation, without causing costiveness, or impairing, like opium, the tone of the stomach, and merely increasing primary disease. The preparation most commonly used in this city is the tincture prepared by digesting ʒij of the Lupulin, in ℥j of alcohol; dose from ʒi to ʒij. Inquietude and watchfulness, connected with excessive irritability, in all its gradations, from the restlessness consequent upon exhaustion and fatigue, to the most uncontrollable paroxysm of delirium tremens, are more frequently allayed by this remedy than any other in ordinary use." Dr. A. T. Thomson says, "But our own experience has not afforded us sufficient proof of its utility as a sedative; and Dr. Bigby's* experiments have lessened very much the confidence practitioners were disposed to give it."

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* See Observations on the Humulus Lupulus, &c. by A. Freake.

† This observation we believe holds good with regard to many of our tinctures.—*Ed.*

As an external application the decoction of hops has been used with some benefit, as a fomentation in painful swellings and tumours. An ointment, formed of hops, (finely powdered) mixed up with lard, was recommended by the late Mr. Freake as an anodyne application to cancerous ulcers.

Hops are given in the form of infusion, powder, tincture, or extract.† The infusion is made with from half an ounce to one ounce of hops to one pint of boiling water, the dose of which may be from one to two ounces twice or thrice a day: dose of the powder from five to twenty grains; dose of the tincture from half a drachm to two drachms.

The following preparations of Lupuline we consider to be more powerful and certain in their effects, than the above preparation of the hop itself.

Pulvis Lupulinæ (Powder of Lupuline.)

Take of Lupuline one part.
White Sugar, powdered, two parts.

First powder the Lupuline in a porcelain mortar, and afterwards add by degrees the sugar: mix them accurately.

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* Vide London Medical Repository, vol. v. p. 97.

† This last preparation requires great care in preparing, otherwise it becomes inert.—*Ed.*

Pilula Lupulinæ (Pill of Lupuline.)

Bruise the Lupuline strongly, and divide into pills. This substance becomes converted into a ductile mass, which renders it unnecessary to add any excipient.

Tinctura Lupulinæ (Tincture of Lupuline.)

Take of Bruised Lupuline, one ounce
Alcohol, two ounces.

Digest for six days in a close vessel, strain, press out the liquor, filter, and add a sufficient quantity of alcohol, so as to make up three ounces of tincture. The dose of the tincture may be from thirty to sixty drops.

Syrupus Lupulinæ (Syrup of Lupuline.)

Take of Alcoholic Tincture of Lupuline, one part
Simple Syrup, seven parts.

The precise doses of the above preparations have not been exactly ascertained, but persons accustomed to the different formulæ of the hop will be at no loss to determine them.

Off.	The Strobiles of the Hop.
Off. Pp.	Extractum Humuli, L.
	Tinctura Humuli, L. E.

SWIETENIA FEBRIFUGA.

Febrifuge Swietenia.[*]

Class DECANDRIA.—*Order* MONOGYNIA.

Nat. Order. TRIHILATÆ, *Linn.* MELIÆ, *Juss.*

GEN. CHAR. *Calyx* five-cleft. *Petals* five. *Nectary* cylindrical, bearing the anthers at the mouth. *Capsules* five-celled, woody, opening at the base. *Seeds* imbricate, winged.

SPEC. CHAR. *Leaves* pinnate. *Leaflets* elliptical, roundish. *Panicle* terminal, divaricated.

THIS tree is a native of the East Indies, growing in various parts of that vast territory, particularly near Chittwail, in the Cuddapa District;† on the mountainous parts of Rajahmundry Circors, Pedapore, and in the vicinity of Omedurdah. It is also a native of Siam.

It is a very large, lofty tree; the trunk is straight; the branches numerous at the top, so as to form a large shady head; the trunk and branches are covered with a scabrous bark, of a grey colour; the leaves are alternate, and abruptly pinnated, composed of three or four pair of opposite, petioled, ovate, obtuse leaflets, each from three to five inches long, and from two to three broad, the lower side extending a little further down the petioles than the upper side; the upper surface is smooth, shining, and of a bright green colour; the flowers are very numerous, small, and nearly white, and furnished with minute bracteas; the calyx is inferior, formed of one leaf, five-cleft, deciduous; the nectary about half the length of the petals, and bellied; the corolla is composed of five ovate, concave, expanding petals; the filaments are very short, and inserted just within the

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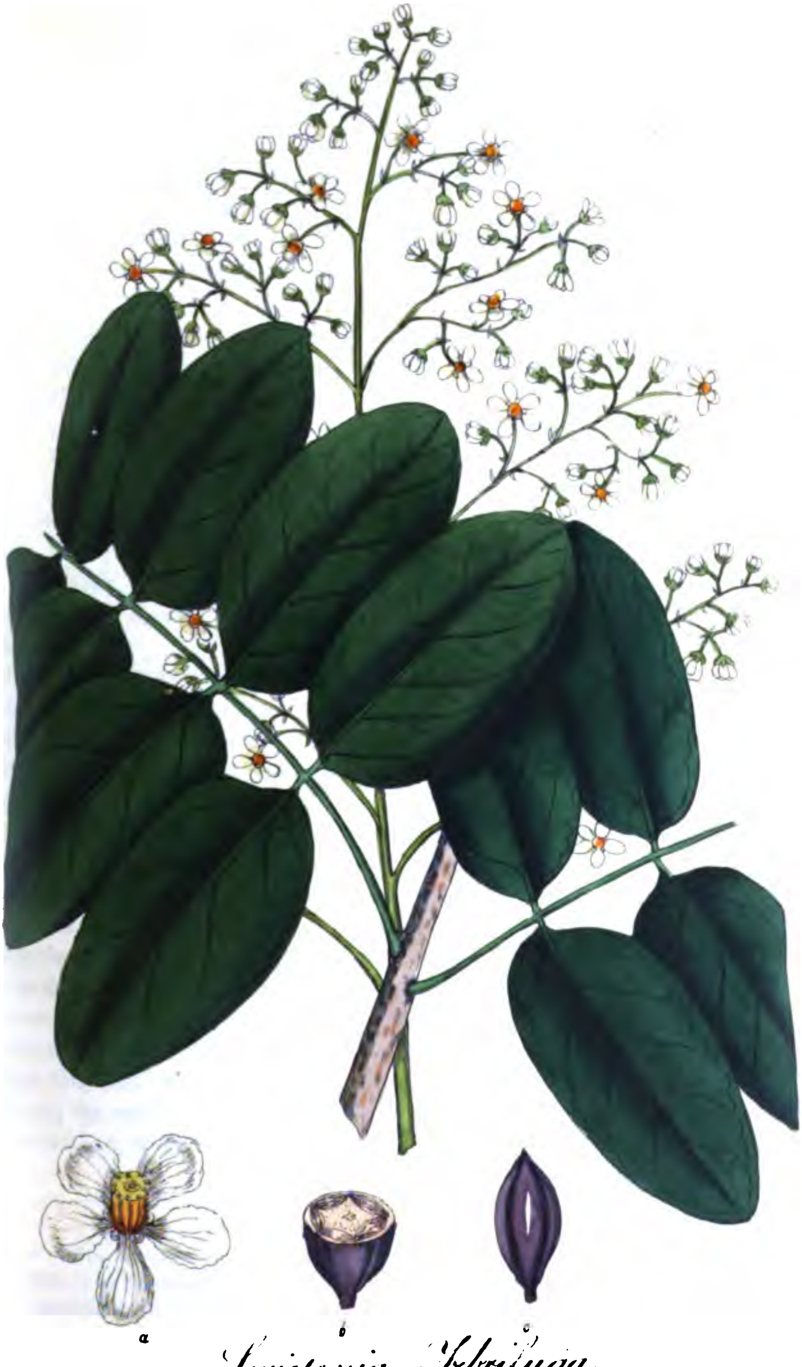
[*] Fig. *a.* represents a flower magnified. *b.* A transverse section of the capsule. *c.* The capsule (both magnified.)

The spike of flowers in our drawing represent the flowers of the natural size; the leaves nearly one-third less than the natural size.

† Ainslie's Materia Indica, vol. i. p. 125.



Swietenia febrifuga.

Printed by G.E. Madeley, 3 Wellington St. Strand

G. Spratt, del. et lith.

He also says, " In common intermittent fevers, I have employed this bark very extensively, and with invariable success. I have also put this drug to the test of trial in three cases of gangrene and mortification, and in a case of suppurated liver; but as it was accompanied with auxiliaries, I cannot speak so positively of its actual efficacy in these instances. The uniform result, however, of so many experiments, satisfied my own mind, that the Swietenia Febrifuga answers every purpose of Peruvian bark, in allaying irritability, and restoring strength. I trust I shall not be accused of being visionary or enthusiastic, when I avow my own conviction, after having long employed this bark in every case where cinchona is indicated, that it forms a completely efficient substitute for the American drug, and that time alone is required to extend. that general conviction of its efficacy, which every succeeding experiment will assuredly tend to impress." Dr. Ainslie says,* " Given to the extent of four or five drachms in the twenty-four hours, I have found it to be a useful medicine, but beyond that quantity, it, in every instance in which I tried it, appeared to me to derange the nervous system, occasioning vertigo, and subsequent stupor."

Swietenia bark may be given in substance from one to five or six drachms in twenty-four hours. It may also be given in the form of infusion or tincture. We are told by Dr. Ainslie that the tincture is, perhaps, the most valuable of all its preparations, where the bark is good, as a stomachic.

Off. The Bark.

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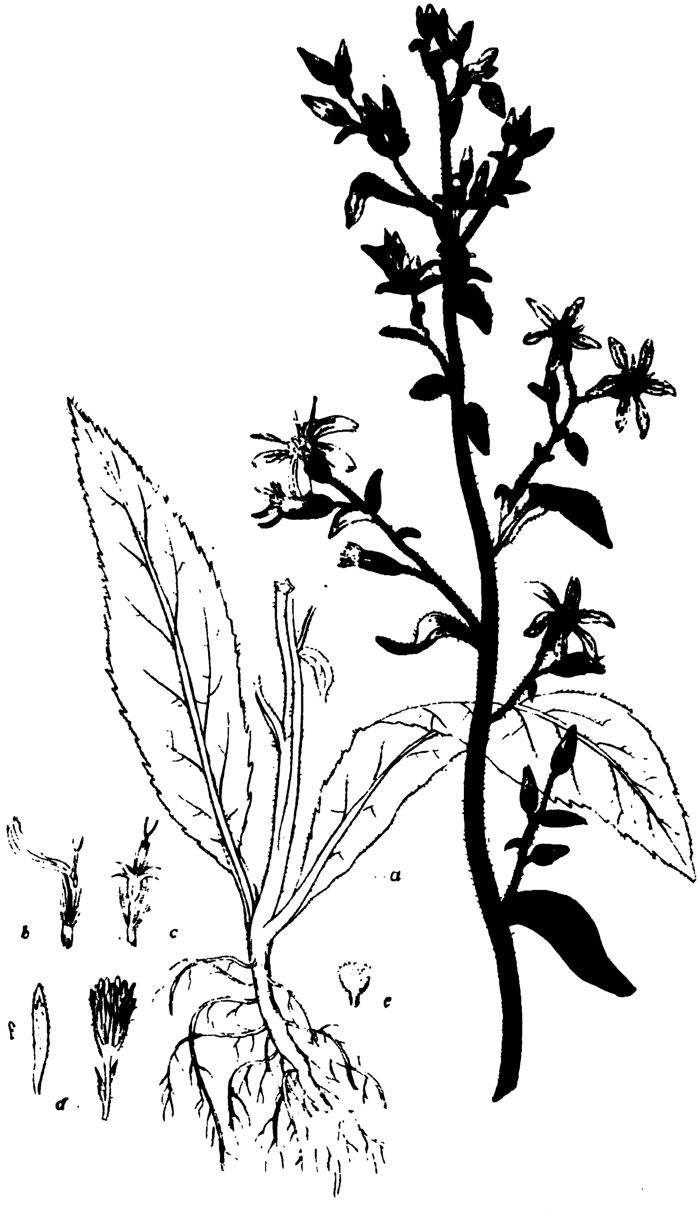
* Mat. Ind. vol. i. p. 124.



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Solidago Virgaurea

[illegible]

[illegible]

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SOLIDAGO VIRGAUREA.

Common Golden Rod.[*]

Class SYNGENESIA.—*Order* POLYGAMIA SUPERFLUA.

Nat. Ord. COMPOSITÆ DISCOIDEÆ, *Linn.* CORYMBIFERÆ, *Juss.*

GEN. CHAR. *Receptacle* naked. *Pappus* simple. *Corollets* of the ray about five. *Calyx* scales imbricate, closed.

SPEC. CHAR. *Stem* slightly zig-zag, angular. *Clusters* panicled, crouded, erect. Upper *Leaves* lanceolate, narrow at both ends; lower elliptico-lanceolate, hairy, partially serrated.

THIS species of Solidago is an indigenous perennial plant, found in woods, copses, and upon heathy ground, where it is frequently met with among furze. Some botanists consider the Solidago Virgaurea as the only native species; but we are told by Miller, that "three[†] sorts grow naturally in England, yet have not been well distinguished by any botanic writer; for in all the books which treat of the English plants, they are put down as one sort, to which they have applied a title of Caspar Bauhin, viz. Virga Aurea Latifolia Serrata, which is a different plant from either of our English sorts; but the third sort here mentioned, (Angustifolia) I believe to be what Caspar Bauhin has titled Virga Aurea Angustifolia Minus Serrata." Mr. Lindley, in the tenth edition of the Hortus Cantabrigiensis, enumerates two indigenous species, viz. the Solidago Virgaurea and Solidago Cambrica. These, if distinct species, bear a close resemblance to each other, and are subject to many varieties. Few species of this genus were known to Linnæus.[‡] Subsequent botanists have added greatly to the number: Sir J. E. Smith enumerates fifty-one, the greater number of which are natives of North America.

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[*] Fig. *a.* the lower part of the stem and root. *b.* A floret of the radius. *c.* A floret of the disc. *d.* The calyx. *e.* The receptacle. *f.* A magnified scale of the calyx.

[†] Solidago Latifolia; Solidago Vulgaris; Solidago Angustifolia.

[‡] Fourteen species only, vide Systema Vegetab. ed. 14.

The root of this plant consists of long, simple fibres; the stem varies in height from one to three feet, somewhat curved at the lower part, then rising erect, slightly zigzag, angular, striated, solid, and somewhat downy; the radical leaves are obovate, serrated, on winged petioles, deep green on the upper surface, pale beneath, and clothed with rigid down; the stem leaves are smaller, narrower, more entire, and are placed alternate; the flowers are yellow, in terminal and axillary erect clusters, forming a close panicle, with lanceolate, downy bracteas; the calyx is formed of membranous scales, with a downy border; the florets of the radius are from five to ten, three-toothed, spreading; those of the disc are numerous, tubular, and cut into five equal segments at the apex; the filaments are capillary, and the anthers united into a cylindrical tube; the seeds are ovate, pubescent, and the pappus rough.

Sensible Qualities, &c. The recent plant has a slightly aromatic odour; when bruised the smell is somewhat more powerful; the taste is somewhat aromatic and astringent; boiling water extracts the active matter of the herb; the watery infusion strikes black with sulphate of iron, and changes to green the colour of syrup of violets.

Medical Properties and Uses. Golden rod was formerly held in great repute as a lithontriptic, and in diseases of the urinary bladder. From its astringent quality, it may be of some use in a debilitated state of the viscera. It has been employed with considerable advantage in diarrhœa; but like many of our indigenous plants, it is now totally disregarded.*

The dose of the powdered herb may be from ten to sixty grains, in any proper vehicle, three times a day.

Off. The Flowers and Leaves.

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* We are told by Gerarde, that he has known the dry herb fetch 2s. 6d. an ounce; so great was the estimation in which it was held previous to its discovery in the neighbourhood of London.

CANELLA ALBA.

Laurel-leaved Canella.[*]

Class DODECANDRIA.—*Order* MONOGYNIA.

Nat. Ord. OLERACEÆ, *Linn.* MELIACEÆ, *Juss.*

GEN. CHAR. *Calyx* three-lobed. *Petals* five. *Filaments* none. *Anthers* twenty-one, adhering to a pitcher-shaped nectary. *Berry* three-celled. *Seeds* two to four.

There is but one known species.

THE CANELLA ALBA is a native of the new World, and is very common in Jamaica and other West India Islands; according to Clusius, it was first introduced into Britain about the year 1600, and we are informed by Mr. Aiton,† that in 1739 it was cultivated by Mr. Miller in Chelsea Gardens. For some time, however, and even until lately, it was very generally confounded with the Wintera Aromatica, a native of South America, discovered by Captain Winter, from whom it took its name, in 1579, when that Commander accompanied Sir Francis Drake in his voyage to the South Pacific Ocean. John Bauhin was the first who confounded the names of these trees,‡ by calling the bark of the Wintera, Canella Alba, and this error was adopted by Linnæus himself,§ who gave to it the name of Laurus Winterana; but on discovering that it belonged to a distinct genus, he still, in a manner, continued his original error, by calling it simply Winterania, as a generic name; and by this it was universally known, till Professor Murray corrected the error, and made a distinct genus of Canella. It must however be observed, that although these two trees do not strictly agree in their botanical characters, there is a very strong resemblance between them; while the sensible and medical properties of their respective barks are nearly the same; and indeed, the bark of the Canella Alba is very generally substituted in the shops for the true Cortex Winteranus, which is but rarely met with; this however is worthy of notice, that one, the Canella Alba, is a native of the Tropics, while the other has been found only in the Antartic regions.

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[*] Fig. *a.* the calyx and pistillum magnified. *b.* The anthers. *c.* The fruit. *d.* Transverse section of the fruit. *e.* A seed of the natural size.

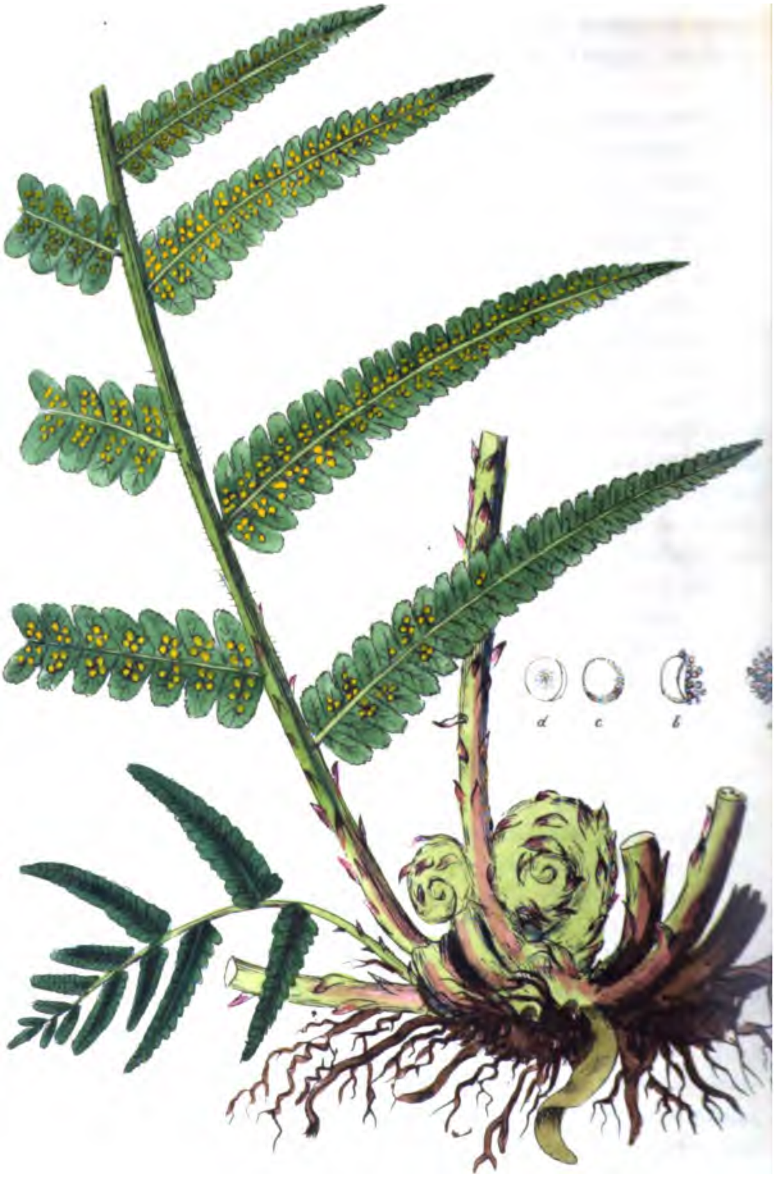
† Hort. Kew. vol. ii. p. 125.

‡ Hist. vol. i. p. 460.

§ Sp. Plant. ed. i. p. 371.

The stem of this tree rises very straight and upright, varying in height, according to the situation in which it grows, from ten to fifty feet, and sending out from its top only a number of erect branches; the stem of the tree is covered with a whitish bark, from whence the name, and by which it is easily distinguished in the woods from the surrounding trees; the leaves are oblong, obtuse, entire, of a dark shining green colour, thick like those of the laurel, which they somewhat resemble, and stand alternate upon short footstalks; the flowers, which seldom open, are of a violet colour, small, and grow in clusters at the tops of the branches upon divided footstalks; the calyx is monophyllus, and divided into three lobes, nearly to its base, these lobes are roundish, smooth, concave, incumbent, membranous, of a green colour, and persistent; the corolla is composed of five petals, of a violet colour, much longer than the calyx, sessile, oblong, concave, erect, and two of them somewhat narrower than the other three; the nectary, which is as long as the petals, is pitcher-shaped, and supports the anthers, there being no filaments; the anthers are twenty-one in number, and are fixed longitudinally to the nectary, they are linear, parallel, distinct, and single valved; the germen is ovate, superior, and supports a cylindrical style furnished with two rough obtuse convex stigmata; the fruit is an oblong berry, containing from two to four kidney-shaped seeds of unequal size, these berries are at first green, then blue, and at last, become of a glossy black colour, and have a faint aromatic taste and smell.

SENSIBLE PROPERTIES. The entire tree is so very aromatic, that when in blossom it perfumes the whole neighbourhood; the flowers dried and softened again in warm water, have a fragrant odour, approaching to that of musk. The leaves have a strong smell of laurel, and no doubt contain prussic acid. The officinal Canella Alba is the bark of the branches, freed from the epidermis, and dried in the shade; it comes to Europe in long quills, about three quarters of an inch in diameter, somewhat thicker than cinnamon, and both externally and internally of a whitish colour, inclining to yellow or brown. Its taste is warm, pungent, aromatic, and somewhat bitter. Its smell is agreeable, and somewhat resembles that of cloves. Its virtues are best extracted by proof spirit; in distillation with water, it yields an active volatile oil, of a dark yellowish colour, thick tenacious consistence, and of an agreeable



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Polypodium Filix mas.

smell, approaching to that of cinnamon; the remaining decoction inspissated, leaves an extract of great bitterness, which seems to be composed of a resinous and gummy matter, imperfectly mixed. The watery infusion is not altered by infusion of galls, neither does sulphate of zinc, or iron, tartarized antimony, nor muriate of mercury, produce any change; but acetate of lead and nitrate of silver, render it milky, and throw down precipitates.

MEDICAL PROPERTIES. We have already said, that the medical properties of this bark and that of the Winterana were nearly the same, and hence the Canella Alba now supersedes the old bark of Winter in the London and Edinburgh Pharmacopœias. It has been supposed to possess considerable medicinal power as an anti-scorbutic, and the sailors employed in the expedition under Sir Francis Drake found it useful in this complaint. It is now considered merely as an aromatic, and as such is used as a corrigent to other medicines. Its virtues reside in its essential oil. This bark, Swartz tells us, was formerly a common ingredient in the food of the Caribs, together with Capsicum, and it is still used as such by the negroes.*

Off.	The Bark.
Off. Pp.	Pulvis Aloes, cum Canella, D.

◆

ASPIDIUM FELIX MAS.

Male Fern.†

Class CRYPTOGAMIA.—*Order* FILICES.
Nat. Ord. FILICES, *Linn.*

GEN. CHAR. *Fructification* in roundish points, scattered, not marginal. *Involucre* umbilicated, open almost on every side.

SPEC. CHAR. *Frond* nearly bipinnate. *Pinnæ* obtuse, notched. *Stipe* chaffy.

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* Linn. Tras. l. c.

† Fig. *a.* the parts of fructification, the pellicle being removed. *b.* The same, with the pellicle partially removed. *c.* External view of the pellicle. *d.* Internal view of the same.

THIS species of Fern is the Θηλυπτερὶς of Dioscorides; it is a native of Britain, and is found in great abundance about the borders of woods, rivulets, and in stony rocky places, flowering in June and July.* This species of fern (with others of the same family) was ranked by Linnæus under the genus Polypodium, or Polypody tribe of plants; but modern botanists have separated the shield-fern from the Polypody, and formed a distinct genus of the shield-fern under the generic title Aspidium.†

The root is perennial, large, long, firm, and covered with thick brown imbricated scales, and furnished with numerous long fibres; the general leaves are pinnate, large, from one to four feet in length, lance-shaped, broader in the middle and gradually decreasing to each extremity, terminating above in an acute point; the partial or second leaves are from fifteen to twenty pair, remote on the lower part, gradually approaching nearer as they advance upwards, and running together at the top; the pinnæ are from seven to fifteen pair, which are largest at the bottom, and gradually decrease towards the top, where they unite in a point, they are of an oval form, and somewhat crenate at the upper extremity; the seed vessels are placed in two rows on the back of the pinnæ or lobes, in number from three to six, and covered with a pellicle; they are at first white, and afterwards change to a black or ash colour; when the seeds are ripe, the pellicle bursts, and after the discharge of the seeds, the vessels become brown and appear as if covered with dust.‡

SENSIBLE PROPERTIES. The root of fern when chewed, is somewhat sweet and mucilaginous, followed by a slight bitter astringent taste. It has scarcely any smell; when dried and powdered it is of a reddish brown colour.

The root has been lately analysed by M. Mirca, who found it to contain gelatine, which was soluble both in water and alcohol; tannin, starch, uncrystallizable sugar, subcarbonate, sulphate and hydrochlorate of potass, carbonate and phosphate of lime, oxide of iron, silex and alumine.§

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* Of the Genus Aspidium twenty-eight species are known, of which, fifteen are indigenous to Britain, the others natives of the East and West Indies, North America and Madeira.—*Ed.*

† By mistake the generic name *Polypodium* was put on our drawing, and the error discovered too late to rectify.—*Ed.*

‡ A diagonal incision of the lower or black part of the stalk of this Fern, presents the appearance of the *spread eagle* of heraldry.

§ Ann. de Chim. xxvi. 219.

MEDICAL PROPERTIES AND USES. The root of fern has been long celebrated for its vermifuge properties. Dioscorides, Galen and Pliny appear to have been well acquainted with it;[*] by later writers, as Hoffmann and others, it was much recommended, but had fallen into disuse till revived by Madame Noufer, a surgeon's widow in Switzerland, who acquired great celebrity for the cure of tape worm, by a secret remedy. This remedy was thought of so much importance by the principal physicians in Paris, that the secret was purchased by the French king, and published by his order. The following, we are told, is the method of cure which was adopted by Madame Noufer and her followers: the patient is prepared by the exhibition of a glyster, and a supper of panada, with butter and salt; the following morning, he is directed to take from two to three drachms of the root of the male fern in powder, this is washed down with a draught of water, and two hours after, a strong cathartic, composed of calomel and scammony (proportioned to the strength of the patient) is to be given; if this dose do not operate after a proper time, a dose of purgative salts is to be taken; and if the worm be not expelled in a few hours, the process is to be repeated at proper intervals. It has been thought, that the success of this mode of treatment is to be attributed more to the agency of the cathartics than the fern; however, from experiments made on the continent, it appears, that in several instances the worm has been expelled after repeated doses of the root, without the assistance of any cathartic.

In this country, we believe the male fern root has not been prescribed with much success; but we think is worthy of further trials. The solid part of the root only should be powdered, and given in doses regulated by the constitution and age of the patient.

Off. The Root.

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[*] Vide Pliny, lib. xxviii. cap. 9. Galen de Simp. Med. lib. viii. Dioscorides M. M. lib. iv. cap. 186.

ALOE SOCOTRINA.

Socotrine, or Spiked Aloe.[*]

Class HEXANDRIA.—*Order* MONOGYNIA.
Nat. Ord. CORONARIÆ, *Linn.* ASPHODELI, *Juss.*

GEN. CHAR. *Corolla* erect, mouth spreading, bottom nectariferous. *Filaments* inserted into the receptacle.

SPEC. CHAR. *Spikes* horizontal. *Flowers* belled. *Stem-leaves* flat, stem-clasping, toothed.

THE ALOE is a perennial plant, a native of Africa, flowering most part of the year. Various species of the Aloe were introduced into this country more than two hundred years ago; in the present day, upwards of ninety species are cultivated in our botanic gardens,[†] where they form one of our ornamental green-house plants. Most of the Aloe tribe are natives of the Cape of Good Hope, and a tract of mountains about fifty miles distant from the town is wholly covered with these plants. Various species of the Aloe have been long since introduced into the West Indies; particularly the Islands Jamaica and Barbadoes, where they are now become naturalized.

The Aloe Socotrina has a strong fibrous root; the flower stems rise to the height of three or four feet, are smooth, erect, of a glaucous green colour; the leaves, which are numerous, proceed from the upper part of the root, they are fleshy, succulent, narrow, tapering, smooth, of a glaucous colour, and beset on the edges with teeth; the flowers are produced in terminal spikes, and are of a reddish orange colour; there is no calyx; the corolla is monopetalous, tubular, nectariferous, and divided into six narrow segments, which separate at the mouth; the six filaments are tapering, yellowish, inserted into the receptacle, and support oblong anthers of an orange colour; the germen is oblong, style slender, the length of the filaments, and crowned with an obtuse stigma; the capsule is oblong, three-celled, and three-valved, and contains many angular seeds.

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[*] Fig. *d.* represents the upper portion of a leaf. *e.* Back and front view of an anther. *f.* The pistillum.

[†] Hort. Cantab. 10th ed.

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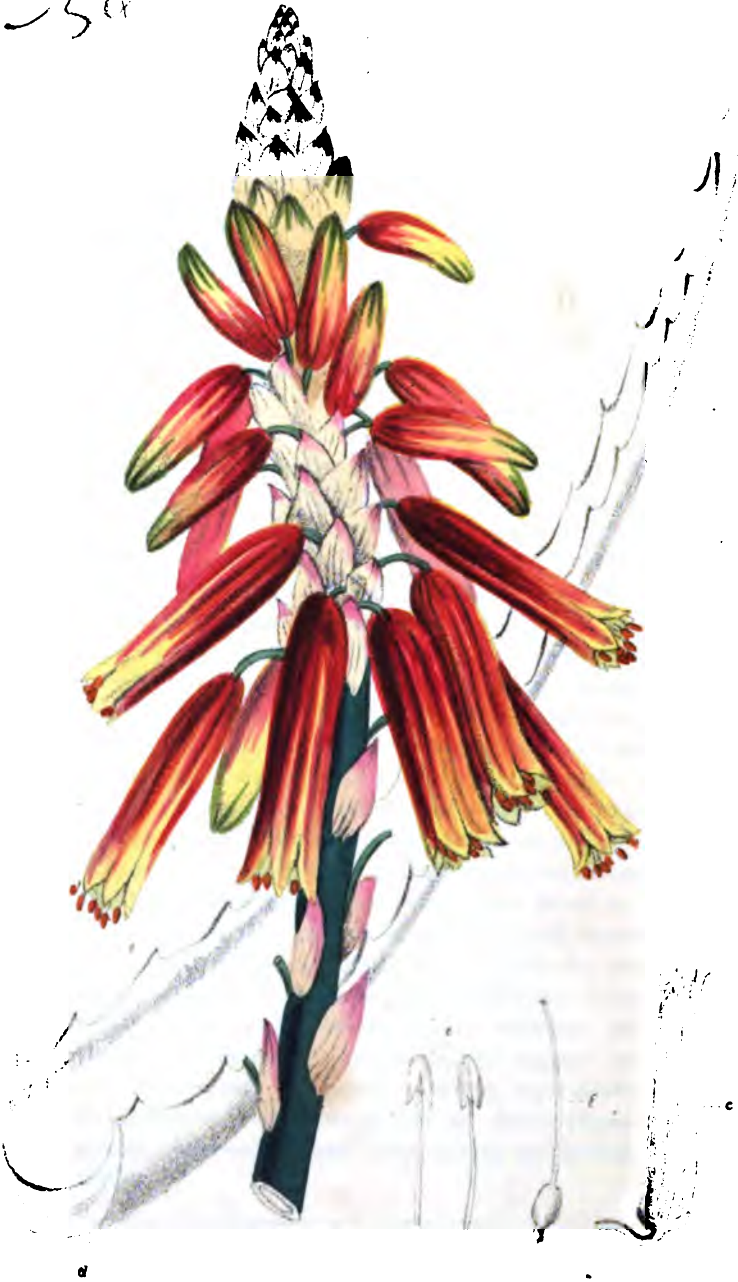
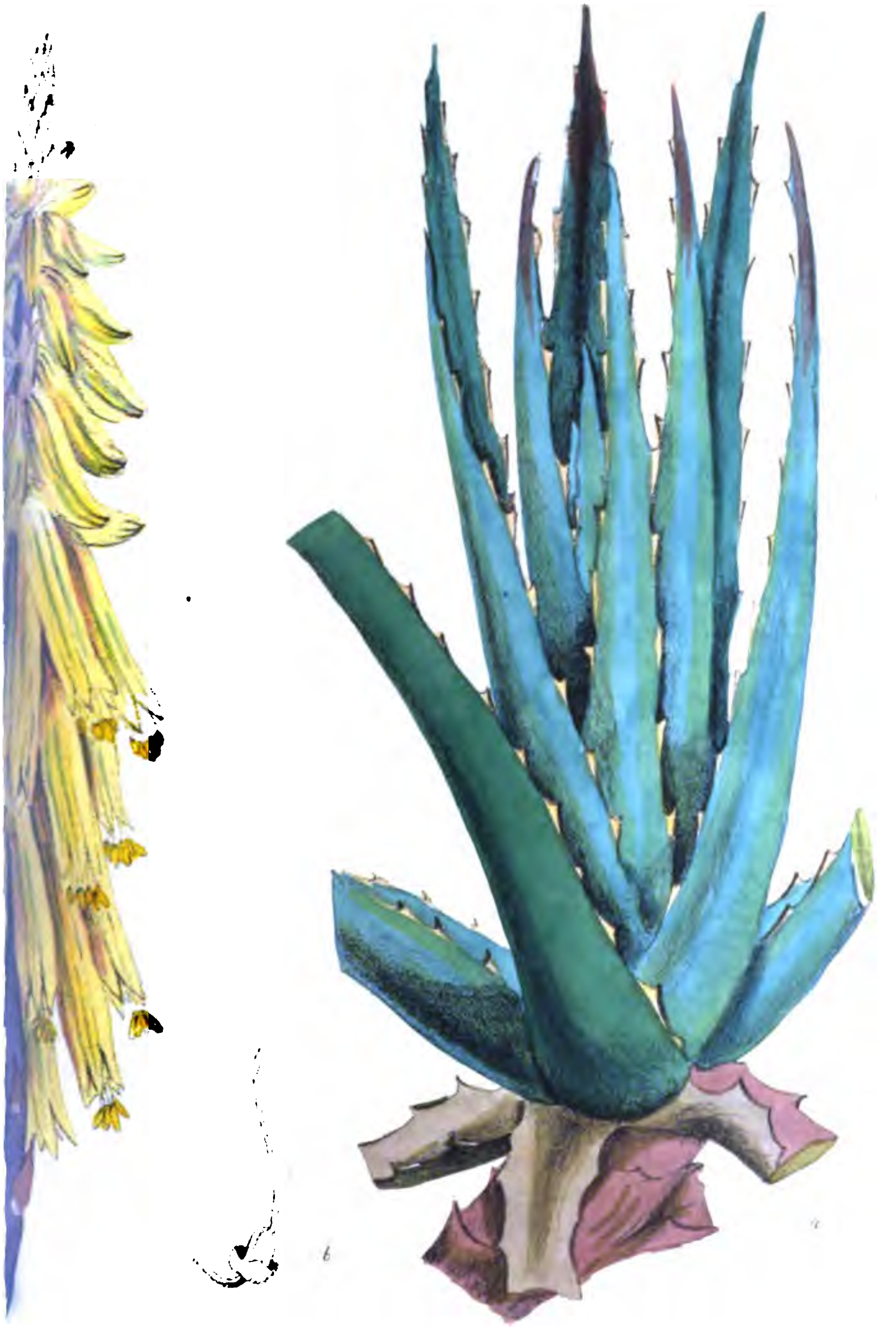


Aloe Socotrina.

ley, 5 Wellington St. Strand



Aloe Vulgaris.

[illegible]

ALOE VULGARIS.

Yellow-flowered Aloe.[*]

For *Class, Order, Nat. Ord.* and GEN. CHAR. See *Aloe Socotrina.*

SPEC. CHAR. *Leaves* sword-shaped, toothed, upright. *Stem* branched. *Flowers* yellow, in a dense panicle.

THE stem is thick, short, branched, and shrubby, and like the leaves abounds in a clammy juice; the leaves are sessile, rising nearly erect, from three to four inches broad at their base, and a foot long; lanceolate, acute, smooth, succulent, concave above, and of a sea-green colour; the flower stem rises about three feet in height, round, erect, smooth, of a purplish colour, branched at top, and terminated by a loose spike of yellow flowers; the flowers are numerous, and stand upon short smooth peduncles, each flower is accompanied by a single bractea of a triangular form, membranaceous, and of a brownish colour; the corolla is monopetalous, oblong, cylindrical, and deeply divided into five segments: the outer segments are larger than the inner, ovate, and spreading at the border; the filaments are thread-shaped, the length of the corolla, inserted into the receptacle, and crowned with oblong incumbent anthers; the germen is oblong, ovate, angular; style nearly the length of the filaments; stigma simple.

This species of Aloe, (Vulgaris) is the one described by Sloane in his History of Jamaica, as producing the Barbadoes or Hepatic Aloes of commerce; it is a native of the Levant and Barbary, but cultivated in the West India Islands. It was found by Dr. Sibthorpe, growing spontaneously in the island of Cyprus. Sir. E. Smith has satisfactorily ascertained it to be the true Αλόη of the ancient Greeks.

The inspissated juice known in commerce under the name of Aloes, is the produce of various species of the Aloe plant. In the shops six kinds of Aloes are met with, viz. Socotrine, Barbadoes or Hepatic, Caballine, commonly called Horse Aloes, Red Aloes, Mocha Aloes, and Indian or Mozambique Aloes: these three last are little known but to the dealers in this drug. It is more than probable that the difference in these several kinds of Aloes, is owing more to the mode of preparing the juice, than to the species of Aloe from which it is produced.

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[*] Fig. *a.* represents the leaves and part of the root. *b.* The pistillum.

The following account of the culture of the Aloe at Barbadoes, and the method of preparing the extract, we have transcribed from a paper on the subject, communicated by Mr. Millington to the Medical Journal, vol. viii.—" The lands in the vicinity of the sea, that is, from two or three miles, which are rather subject to drought than otherwise, and are so stony and shallow, as not to admit of planting sugar canes, are generally found to answer best for the Aloe plant. The stones, at least the largest, are first picked up, the land is then ploughed lightly, and carefully cleared of noxious weeds, lined at one foot distance from row to row, and the young plants set like cabbages, at about five or six inches from each other. This regular mode of lining and setting the plants, is practised by the most exact planters, in order to facilitate the weeding of them by the hand, very frequently; for if they are not kept perfectly clean and free from weeds, the produce will be but very small. They will bear being planted in any season of the year, even in the driest, as they will live on the surface of the earth for many weeks without a drop of rain. The most general time, however, of planting them, is from April to June. In the March following, the labourers carry a parcel of tubs and jars into the field, and each takes a slip or breadth of it, and begins by laying hold of a bunch of the blades, as much as he can conveniently grasp with one hand, while with the other, he cuts it just above the surface of the earth, as quickly as possible, that the juice may not be wasted, and then places the blades in the tub, bunch by bunch. When the first tub is thus packed quite full, a second is begun, each labourer having two; by the time the second is full, all the juice is generally drained out of the blades in the first tub. The blades are then lightly taken out, and thrown over the land for manure, and the juice is poured out into a jar. The tub is then filled with blades, and so alternately, till the labourer has produced his jar full, or about four gallons and a half, which is often done in six or seven hours, and he has then the remainder of the day to himself; it being his employer's interest to get each day's operation as quickly done as possible.

"I should observe, that although aloes are often cut in nine, ten, or twelve months after being planted, they are not in perfection till the second or third year; and that they will be productive for ten or twelve years, or even longer, if good dung, or manure of any kind, is strewed over the field once in three or four years.

"The Aloe juice will keep for several weeks without injury. It is therefore not boiled till a sufficient quantity is procured, to make it an object for the boiling house.

"In the large way, three boilers, either of iron or of copper, are placed to one fire, though some have but two, and the small planters only one. The boilers are filled with the juice, and as it ripens, or becomes inspissated, by a constant but regular fire, it is ladled forward from boiler to boiler, and fresh juice is added to that farthest from the fire, till the juice in that nearest the fire, (by much the smallest of the three, and commonly called by the name of *tatch*, as in the manufactory of sugar) becomes of a proper consistence to be skipped or ladled out into *gourds* or other small vessels used for its final reception. The proper time to ladle it out, is when it is arrived at what is termed a resin height, or when it cuts freely, or drops in thin flakes, from time to time, into the *tatch* for that purpose. A little lime water is used by some Aloe boilers during the process, when the ebullition is too great.

"As to the sun-dried aloes, which are more approved of for medical purposes, very little is made in Barbadoes. The process is very simple. The raw juice is either put into bladders left quite open at the top, and suspended in the sun, or in broad shallow trays of wood, pewter, or tin, exposed also to the sun, every dry day, until all the fluid parts are exhaled, and a perfect resin formed, which is then packed up for use or exportation."

ALOE SOCOTRINA, or true Socotrine Aloes,* so named from being formerly brought from the island of Socotra, or Zocotra, at the mouth of the Red Sea, near the straits of Babelmandel, comes wrapped in skins. This sort of aloes, is also imported from the Cape and Bombay, and we are told by Mr. Barrow, that the quan-

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* This sort of aloes is chiefly the product of the Aloe Spicata, the species of aloe most abundant at the Cape; but the various sorts of aloes are not the product of one species only, but of the several species and varieties that are produced in countries in which the aloes are prepared, although one may prevail.—*Ed.*

RADCLIFFE

tity of Cape Aloes sent to London, from 1799 to 1802, inclusive, was 341,927 lbs.*

QUALITIES, &c. The best Socotrine Aloes is hard and friable in the winter, but somewhat pliable in the summer, and softens between the fingers; the lumps are of a yellowish red colour, with a cast of purple; surface very glossy, as if varnished, and semi-transparent; when reduced to powder, of a bright golden yellow: it has a peculiar aromatic odour, and a strong bitter taste. The Cape Aloes resembles the above, excepting in its odour, which is more powerful, and more disagreeable, and the inside of the lumps is apt to continue soft and pliable; it is imported in casks and chests. The Bombay Aloes is rather duller and browner, but in other respects, differs very little from the true Socotrine. Aloes are prepared at the Island of Zocotra, by cutting the leaves off close to the stem,† then cutting them into pieces and expressing the juice, which is allowed to remain at rest for forty-eight hours, during which time the feculent matter is deposited; after which the supernatant liquor is poured off into flat dishes, and evaporated in the sun to a proper consistence.

QUALITIES, &c. OF BARBADOES OR HEPATIC ALOES. The odour of the Barbadoes Aloes is stronger and less pleasant than that of the Socotrine, the taste is intensely bitter and nauseous, with little or nothing of the aromatic flavour of the latter. This sort of aloes is of two kinds; that brought from the East Indies, is of a light brown or reddish yellow colour, and breaks with a clean fracture, and possesses nearly the same medicinal properties as the true Socotrine.‡ That brought from Barbadoes, is not so clear and bright as the foregoing; its texture is also more compact, it is less brittle, but drier. The best aloes that comes from Barbadoes is in large gourd shells, the inferior sorts are imported in casks.

CABALLINE ALOES is a very inferior sort, and may be readily distinguished from both the foregoing by its strong rank smell; it is sometimes met with so pure and bright, as scarcely to be distinguishable by the eye, from the Socotrine, but its offensive smell readily betrays it. It is probable that it is prepared from the dregs and residuum of the preceding sorts.

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* Vide Travels in Africa.

† The juice expressed from the thick leaves acquires a purple colour in the air, and furnishes a permanent dye.* In Barbary, a cloth of a very beautiful texture, (resembling silk) is manufactured from the ligneous part of the leaves and stalk. In Cochin China, a wholesome and edible fecula is also prepared from them.—*Ed.*

‡ The East India or Bombay Aloes is very generally sold in the shops for the genuine Socotrine aloes.—*Ed.*

* Ann. de Chimie, vol. xxv.

MOCHA ALOES. This sort resembles the Socotrine or Cape Aloes in appearance, but is said to be more purgative. It is probably the same as the Cape, but has derived its name from Mocha, the place from whence it is exported. Indian and Mozambique Aloes are inferior sorts of the Hepatic or Bombay Aloes.

CHEMICAL PROPERTIES, &c. of ALOES. "According to Neumann's analysis, 100 parts of aloes contain about 7.8. soluble in water only, or analogous to gum, 94. soluble in alcohol only, or resinous matter, and 895 soluble both in alcohol and in water, or extractive." Different proportions have been got by other chemists from different varieties of aloes, and Braconnot has described the extractive as a peculiar principle, under the title of aloesin. The Socotrine Aloes when distilled with water, yields a volatile oil; it is nearly or totally soluble in boiling water, but as it cools, a peculiar bitter matter of a resinous nature is deposited; on continuing the boiling, the extractive matter taken up is rendered insoluble. Hepatic Aloes does not yield any volatile oil by distillation, nor is it totally soluble in alcohol. The extractive obtained separately from any kind is less nauseous than the crude aloes, but differs in this respect, according to the sort of aloe from which it is prepared.

MEDICAL PROPERTIES AND USES. Although the various kinds of aloes differ considerably in their sensible qualities, yet they agree pretty uniformly in their medical effects. They are warm, stimulating cathartics, exerting their action chiefly on the colon and rectum. In small doses repeated, aloes warm the habit, quicken the circulation, and promote the uterine and hæmorrhoidal fluxes. From the stimulant property of aloes, they are found very useful cathartics in most cases where the intestines are in a sluggish and torpid state, particularly in habitual costiveness, to persons of a hypochondriacal temperament, and those who lead a sedentary life; in jaundice, chlorosis, scrophula, &c. the good effects of aloes are pretty certain. Aloes have also been found to be an excellent remedy for the expulsion of ascarides; for this purpose it is given internally, and applied externally to the abdomen in the form of plaister. Aloes are contra-indicated in all fluxes, phthisis, irritable and plethoric constitutions, and to persons afflicted with piles. The purgative effects of aloes have been supposed by some to reside entirely in its resin, but from experience the pure resin has been found to have little or no cathartic quality, and the extractive part, when separated from the former, generally acts more powerfully than the crude aloes. Socotrine Aloes acts with more violence than the Hepatic, and this is supposed to arise from the former containing more extractive than the latter, hence the Socotrine Aloes is most proper when a stimulant is required.

The various kinds of aloes may be given in doses of from five to twenty grains, either alone or in combination with bitters or aromatics. It is said that larger doses do not act more effectually. Aloes are said to form one of the chief and most active ingredients in many patent medicines.*

Off.	Extract of Aloes
Off. Pp.	Extractum Aloes, D.
	Pilulæ Aloeticæ, E. D.
	——— Aloes comp. L.
	——— ——— et Assafœtidæ, E.
	——— ——— c. Myrrh, L. E. D.
	Pulvis Aloes comp. L.
	Tinctura Aloes, L. E. D.
	——— ——— comp. E. D.
	——— ——— Ætherea, E.
	Vinum Aloes, L. E. D.

Aloes also form an ingredient in some other compound medicines of the Pharmacopœias.

◆

PISTACHIA TEREBINTHUS.

Chian, or Cyprus Turpentine Tree.†

Class Diœcia.—*Order* Pentandria.

Nat. Order. Amentaceæ, *Linn.* Terebintaceæ, *Juss.*

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[*] A catalogue of these, with their combinations, will be found in Gray's Supplement to the Pharmacopœias.

[†] Fig. *a.* a female flower, magnified. *b.* A male flower.—Our drawing represents the female plant.

GEN. CHAR. Male. *Calyx* five-cleft. *Corolla* none.
Female. *Calyx* three-cleft. *Corolla* none.
Styles three. *Drupe* one-seeded.

SPEC. CHAR. *Leaves* composed of from two to four pair of leaflets with an odd one. *Leaflets* ovate, lanceolate.

THIS species of Pistachia[*] is a native of Barbary and the south of Europe; it is cultivated in the Islands of Chios and Cyprus, from whence the turpentine imported into this country is chiefly collected. This tree was first cultivated in this country about the year 1730,[†] and we are told that when planted against a wall it bears our winters very well, flowering in June and July. This tree rises to the height of from twenty to thirty feet, sending off many long spreading branches, covered with a smooth bark; the leaves are pinnate, composed of three or four pair of ovate, lance-shaped, veined, entire, opposite leaflets, with an odd one at the end; the flowers are male and female on different trees: the males are in amentums; the calyx is divided into five small ovate segments; the filaments, which are four or five in number, are very short, and support large, erect, quadrangular, brown coloured anthers. The female flowers are placed in a common peduncle in alternate order; the calyx is divided into three small segments; the germen is ovate, supporting two or three styles, crowned with reflected, clubbed stigmas; the fruit is of a reddish colour, subovate, smooth, and gibbous on one side towards the top.

We are told by Tournefort,[‡] that the Cyprus or Chian turpentine (which this tree furnishes,) is procured by wounding the bark of the trunk in many places, leaving a space of about three inches between each wound; from these the turpentine issues, and flows upon stones, which are placed at the bottom of the tree to receive it, and upon which it is allowed to remain during the night to condense; in the morning, before sun-rise, it is scraped off. In order to free it from all extraneous admixture, it is again liquefied by the sun's heat, and passed through a strainer. These trees yield but a very small quantity of the juice, on which account it fetches a very high price. We are told that very large trees yield less than one pound of turpentine. In the eastern parts of the island of Cyprus the trees are said to afford somewhat more, though still so little as to render it very costly, hence it is often adulterated with common turpentine.

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[*] Τέρμινθος, Dioscoridis.

[†] Aiton's Hort. Kew.

[‡] Voyage du Levant, tom. i. p. 145.

Qualities, &c. The genuine Chian turpentine is generally about the consistence of new honey, transparent, clear, tenacious, of a pale yellow colour, and a fragrant smell; its taste is moderately warm, but free from acrimony and bitterness.

Medical Properties and Uses. These resemble the other turpentines, which have been fully considered under the article Pinus, to which we refer our readers.—See pp. 23—29.

◆

PISTACHIA LENTISCUS.

Mastic Tree.[*]

For *Class*, *Order*, and Gen. Char.
See *Pistachia Terebinthus.*

Spec. Char. *Leaves* abruptly pinnate. *Leaflets* ovate, lanceolate. *Petioles* winged.

The Pistachia Lentiscus[†] is a native of the south of Europe and the Levant; it appears to have been cultivated in Britain so early as 1664,[‡] but it is of slow vegetation, and in this country seldom arrives to that degree of perfection to give us a competent idea of the plant in its native soil.

The stem of this tree seldom exceeds ten or twelve inches in diameter, and rises to the height of about twelve feet, and towards the top sends off numerous branches; both stem and branches are covered with a smooth bark of a brown colour; the leaves are

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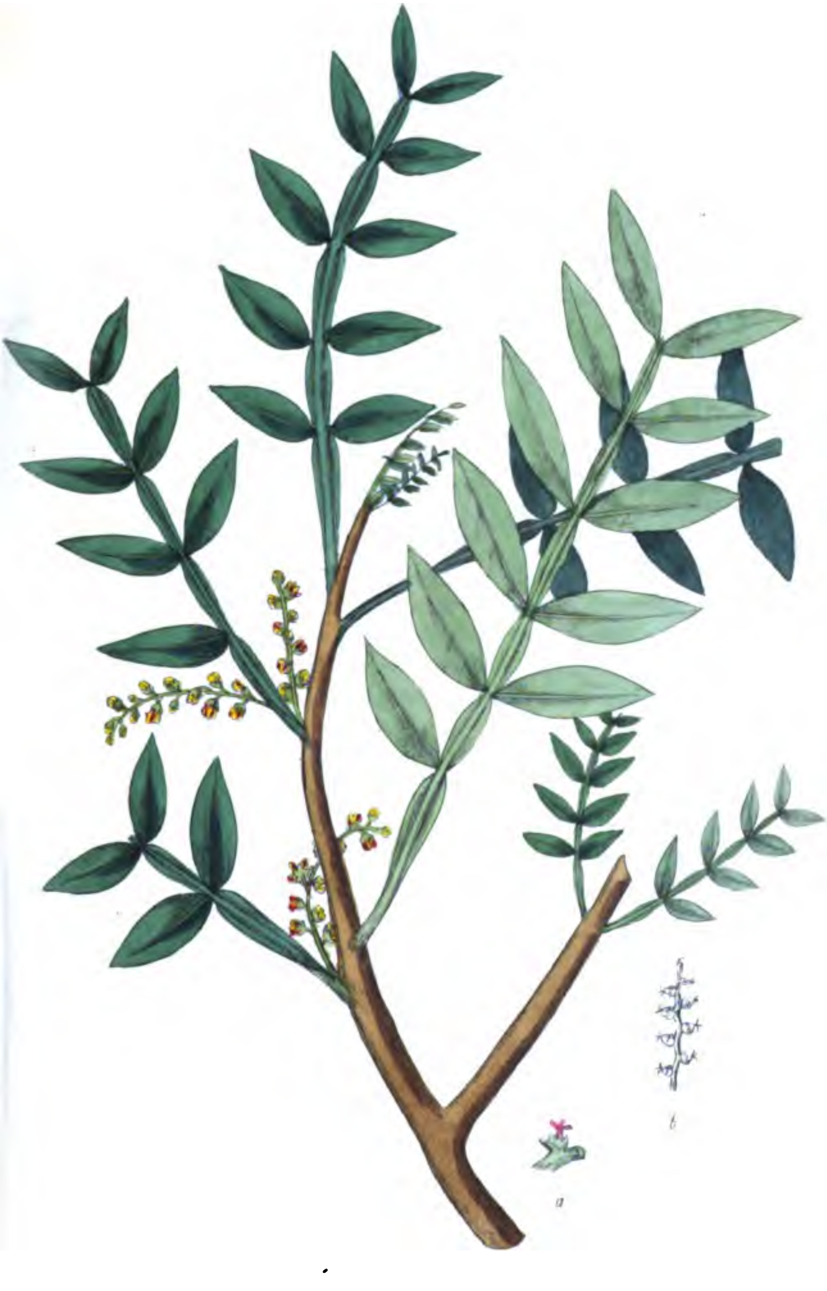
[*] Fig. *a*. a female flower, magnified. *b*. Female flowers, natural size.—Our drawing represents a male plant. The male flowers resemble those of the Pistachia Terebinthus.

[†] Σχινος, Dioscoridis.

[‡] Hort. Kew.



Pistacia Lentiscus.

C. I. Madeley, Wellington S^t Strand.

G. Spratt del

abruptly pinnate, consisting of several pairs of narrow, ovate, opposite leaflets, closely attached to the common footstalk, which has a narrow foliaceous expansion or wing on each side, running from one pair of leaflets to the other; the flowers are male and female on distinct trees, and resemble those of the Pistachia Terebinthus; the fruit is a drupe, containing an ovate smooth nut, of a brownish colour when ripe. The flowers appear in May, and the fruit ripens in August.

The officinal mastic is chiefly obtained from the island of Chios, by making transverse incisions in the bark of the trunk and branches of the trees, from whence the mastic slowly exudes, and is suffered to run down to the ground, which is properly prepared to receive it, by being made perfectly smooth and hard. After sufficient time is allowed for its concretion, it is collected for use.* The time chosen for making these incisions is from July to August, when the weather is hot and dry; on the following day the mastic begins to flow, and is collected every three or four days till the middle of October or November, when the mastic ceases to exude. The best mastic comes to us in the form of small, transparent, brittle grains, packed in chests; it is said that above 1500 cwt. is annually exported from Chios. We are told that a soft mastic, having all the qualities of true mastic, (except in its consistence, which resembles that of turpentine,) is obtained by engrafting the lentisck on the Chian turpentine tree.†

Sensible and Chemical Properties. It has a light agreeable smell, more especially when rubbed or heated. Its taste is warm and bitter; on being chewed it at first crumbles, but soon after sticks together, and becomes soft and white like wax. It totally dissolves in ether, and partially so in alcohol, in both which menstrua it discovers a greater degree of warmth and bitterness, and a stronger odour than that of the resin in substance.‡ Alcohol dissolves about four parts out of five, the residue which remains undissolved has, when moist, the character of caoutchouc, but becomes brittle when dried.§ This substance resembles pure resins, in being semi-transparent, brittle, fusible, insoluble in water, and soluble in ether, but differs from them in being insoluble in alcohol. Boiled in water, it impregnates the liquor with its smell, but gives out little or nothing of its substance; distilled with water, it yields a small proportion of a limpid essential oil, of a fragrant smell and a moderately pungent taste.

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* Tournefort's Voyage du Levant, tom. i. p. 44.

† Vide Translation of Olivier's Travels, vol. ii. p. 90.

‡ Lewis's Mat. Med.

§ Thomson's Chemistry, 4th edit. vol. v. p. 93.

MEDICAL PROPERTIES AND USES. Mastic is regarded as a mild corroborant, astringent, and diuretic, and is said to possess (but in a milder degree,) the virtues of the turpentines; hence it has been recommended in those diseases in which turpentine proves useful; formerly it was much celebrated as a medicine in ulcerations of the uterus and lungs, in debility of the stomach, and in fluor albus.[*] Chewing this drug has likewise been said to have been of use in pain of the teeth and gums. "It is employed to fill the cavities of carious teeth, for which purpose it is well adapted, from its property of softening in the mouth, and imparting little taste."[†] It is a common practice with the Armenian women to chew this resin, not only to render their breath more agreeable, but to strengthen the gums and whiten the teeth: they also mix it with their fragrant waters, and burn it with their ordoriferous substances in the way of fumigation.

Off. Mastic.

ARNICA MONTANA.

Mountain Arnica.[‡]

Class SYNGENESIA.—*Order* POLYGAMIA SUPERFLUA.

Nat. Ord. COMPOSITÆ DISCOIDEÆ, *Linn.* CORYMBIFERÆ, *Juss.*

GEN. CHAR. *Receptacle* naked. *Seed-down* simple. *Calyx* with equal leaflets. *Corol of the ray* have often five filaments without anthers.

SPEC. CHAR. *Leaves* ovate, pointed. *Stem Leaves* opposite in pairs.

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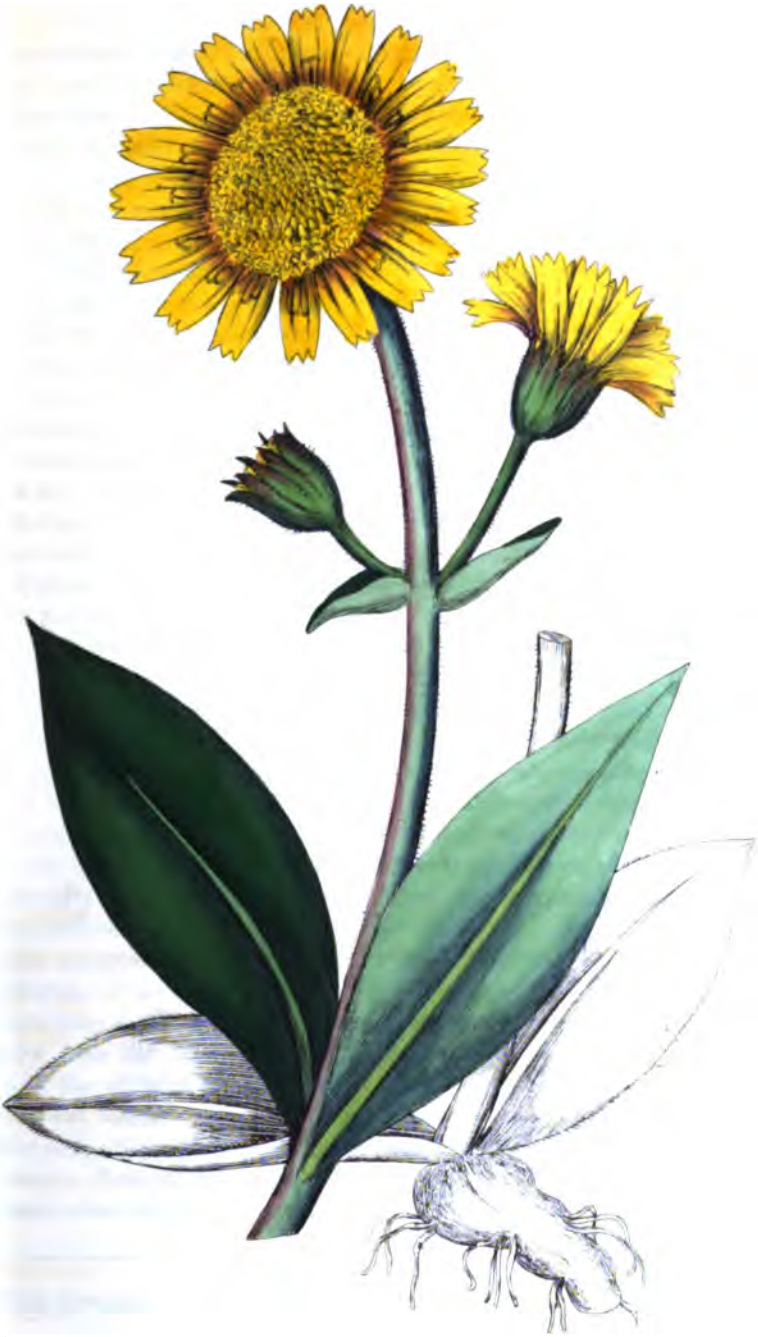
[*] The ancients used the wood and leaves.—*Ed.*

[†] Thomson's Dispensatory.

[‡] Fig. Our drawing represents a plant of the natural size, the lower portion of which with the root cut off.



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Printed by C. Hullmandel.

Arnica Montana.

This species of Arnica is a native of the north of Europe, delighting in mountainous situations; it is a common plant on the mountains of Germany, Switzerland, and Siberia, flowering in July: it has also been found in North America. This plant was first cultivated in England by Mr. P. Miller, in 1759,* but our climate is not so congenial to its propagation as its native soil. The root is perennial, externally of a brown colour: its form is præmorse, with bundles of long fibres attached to it; the stalk rises about one foot in height, erect, obscurely angular, striated, rough, hairy, and terminated by two or three upright peduncles, each bearing a single flower; the leaves are ovate, obtusely lance-shaped, and stand sessile, in pairs upon the stem; the radical leaves are less pointed, and narrower at their bases than the cauline leaves; the flowers are of a deep yellow or copper colour; the calyx is imbricated, and consists of a single row (from fifteen to sixteen) of narrow lancet-shaped, rough leaflets, with purple points; the florets of the ray are ligulate, about fourteen in number, twice as long as the calyx, striated, three-toothed, and hairy at the base; the florets of the disc are tubular, with a five-lobed margin; the seeds are oblong, striated, and crowned with down, of a russet colour.

Sensible and Chemical Properties. The odour of the fresh plant is weak, and to some rather unpleasant; when dried it is slightly aromatic, and excites sneezing: to the taste, the leaves and flowers are somewhat aromatic, bitter and pungent; that of the root acrid and bitter. The herb when macerated in boiling water, yields an olive-brown infusion, which strikes a deep green colour with sulphate of iron and zinc, and lets fall dark precipitates; the mineral acids render the infusion turbid, and of a dirty white colour, occasioning brown precipitates; the infusion reddens tincture of litmus, but occasions no change in solutions of tartarized antimony or oxymuriate of mercury; the leaves and flowers when digested in sulphuric ether or alcohol, give out a resinous matter, which may be separated from the former solution by evaporation, and from the latter, by the addition of water. It is therefore probable, that the Arnica plant contains resin, tannin, mucus, a bitter matter, and a peculiar acid, which Bouillon la Grange thinks is gallic acid.

Medical Properties and Uses. The leaves and flowers of Arnica when administered in small doses, are stimulant, diaphoretic, narcotic and diuretic; in larger doses emetic and cathartic: the root is said to be aromatic and tonic. That the Arnica is a medicine of considerable activity, (especially in paralysis) there cannot be a doubt, but how far it deserves the extravagant praises it has received at Vienna, future experiments must determine. Dr. Collin, physician to the Pazman Hospital, states, that with the flowers of this plant, made into an electuary with honey, he cured more than one thousand patients labouring under different species of intermittent fevers* in that hospital, from December 1771 to July 1774; and during the following winter, he made trial of a watery extract of the flowers, by which he cured thirty quotidians, forty-six tertians, and fifty-eight quartans. Dr. Collin also states, that he experienced equal success with the flowers (employed in the form of infusion) in many hundred cases of putrid fevers. In some cases, he recommends the root† in preference to the flowers, believing the former to possess more cordial, tonic, and antiseptic qualities. Dr. Collin also found the root of Arnica of great efficacy in malignant dysentery, and its good effects in this disease is confirmed by Dr. Diell, physician to the Military Hospital at Vienna. Dr. Collin farther ascertained the medicinal power which he attributes to this root, in thirteen cases of gangrenes, where its antiseptic effects admitted of more evident proof. As the Arnica, when first administered, often excites vomiting or uneasiness of the stomach, it will be necessary to begin with small doses, but by repeating the medicine two or three times, this uneasiness goes off. The leaves and flowers have also been recommended in suppression of the menses, visceral obstructions, and pulmonic complaints, gout, rheumatism, convulsive diseases, and dysentery; but in this latter disease it often proves injurious, from its stimulant properties. But its good effects are more particularly evident in paralytic affections, in which diseases, we have many proofs of its efficacy;‡ and it is

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* Hortus Kewensis, vol. iii. p. 226.

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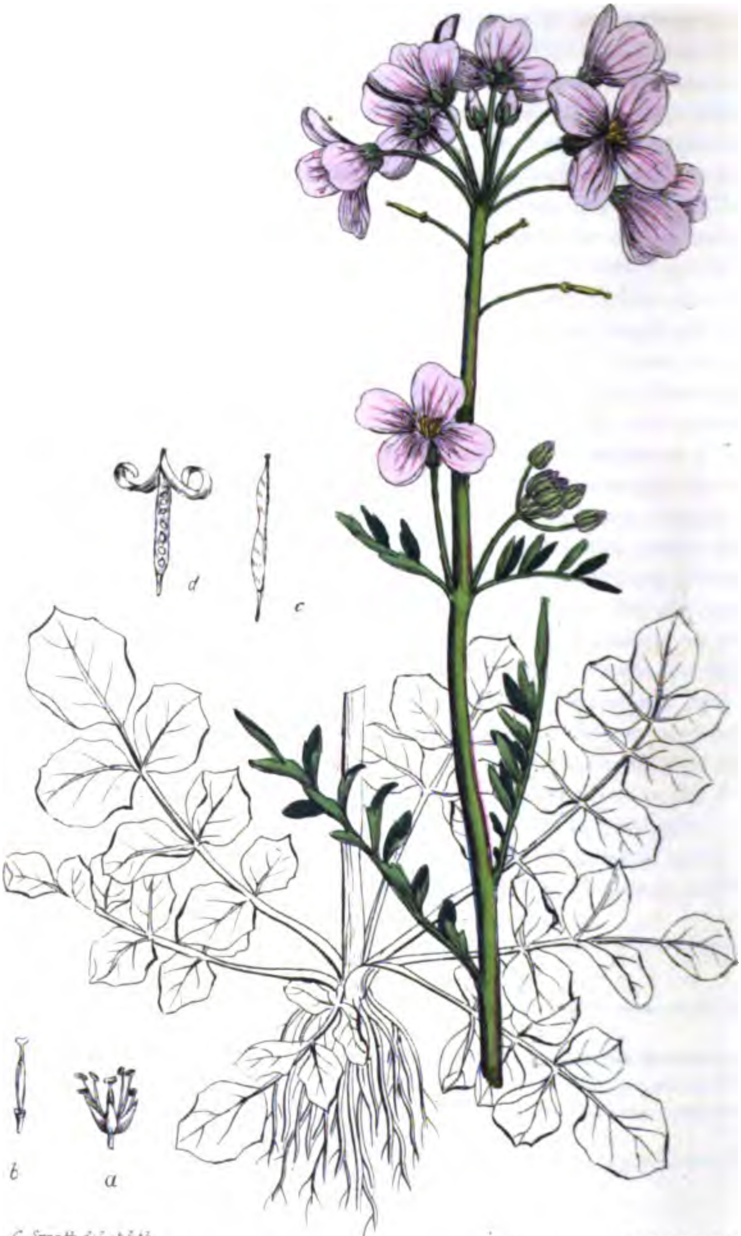
* We are told by Bergius, that he found it aggravate rather than remove intermittents.

† R. Pulv. Rad. Arnicæ unc. ij. digere in phiala alta balneo arenæ adaptata, exacte clausa, per 12 horas cum aq. q. s. colatur unc. xxx. adde syr. alth. unc. iij. M. Sumat æger omni bihorio unc. ij. vel iij. And to make this medicine more palatable, he occasionally added lemon juice, wine or spirits of vitriol.

‡ Buchner, Diss. de genuinis principiis et effectibus Arnicæ. Schulzius Mat. Med. de la Marche diss. de Arnicæ veræ usu.



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Cardamine Pratensis.

observed in these cases, that the recovery is generally preceded by some uneasiness, and a pricking sensation in the affected part. When given in too large doses, it is apt to create anxiety, nausea, vomiting, and the other deleterious effects common to powerful narcotics.* Arnica may be exhibited in substance, or in an infusion made by macerating one or two drachms of the leaves and flowers, or two or three scruples of the root, in ten or twelve ounces of boiling water; of this infusion, when strained, the dose may be from one to two ounces, twice or thrice a day; the dose of the powder, from five to fifteen grains, in any suitable vehicle.

Off. The Flowers and Root.

CARDAMINE PRATENSIS.

Cuckow Flower.†

Class TETRADYNAMIA.—*Order* SILIQUOSA.

Nat. Ord. SILIQUOSÆ, *Linn. and Juss.*

GEN. CHAR. *Pods* opening elastically, with revolute valves. *Stigma* entire. *Calyx* somewhat gaping.

SPEC. CHAR. *Leaves* pinnate. *Pinnæ of the radical leaves* roundish, dentated, or irregularly angular. *Pinnæ of the stem leaves* lanceolate.

THIS species of Cardamine (*Σισυμϐρίον ἕτερον* of Dioscorides,) is indigenous to Britain, common in moist meadows and pastures, producing its flowers in April and May; it thrives best in shady situations. In the colour of its blossoms it is subject to much variation, they are usually white, with a slight tinge of purple.‡ It probably acquired its common English name of ladies-smock from the white appearance which its blossoms give to the meadows where it abounds, resembling linen bleaching on the grass:[*] a practice very general formerly, when most families spun and bleached their own linen: and that of cuckow flowers from their blowing early in the spring when the cuckow is first heard. This plant also gives name to one of our most beautiful species of butterfly, the *Papilio Cardamine*, or orange-tip butterfly of Linnæus, the caterpillar of which feeds upon it.

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* We are told that the Savoyards and the inhabitants of the Vosgeses, make use of this plant as we do tobacco, both to snuff and smoke; hence the plant is commonly known on the continent by the name of Tabac de Savoyards et de Vosges.

† Fig. *a.* the calyx and stamens. *b.* The pistillum. *c.* The pericarpium.

‡ We have occasionally seen this plant with double blossoms.—*Ed.*

The root is perennial, branched, and sends off many long, round fibres; the stalk rises about nine or ten inches high, upright, round, or very slightly angular, smooth, and a little branched towards the top; the radical leaves are frequently imperfect or altogether wanting; when present, spreading in a circular form, pinnated, the pinnæ roundish, slightly and irregularly angular, and stand upon very short petioles; the leaves upon the stem are erect, and consist of several pair of pinnæ, with an odd one; the pinnæ are opposite, spear-shaped, concave, pointed, and of a bright green; the flowers terminate the stem in a corymb; the peduncles are smooth and round; the calyx a perianthium, deciduous, composed of four leaves, which are oval, obtuse, membranous at the edge, hollow, and the alternate one gibbous at the base; the corolla is cruciform; the petals are inversely ovate, white, or very pale purple, veined, slightly emarginate, claws of a yellowish colour; the filaments are six, four long and two short, bearing small, oblong, incumbent yellow anthers, and invested at their base with four nectarious glands; the germen is round, slender, about the length of the filaments; style very short; stigma globular; seed vessel a cylindrical pod of two valves, about an inch in length, which opens elastically when the seeds are ripe, and rolls back in a spiral form; the seeds are numerous, round, somewhat flat, and of a yellowish colour.

We are told by Miller[†] that there are four varieties of this species of cardamine, viz. the single blossom, with white and purple flowers, and the double flower of both colours. These varieties are frequently intermixed in the same meadows. The leaves of this plant are gathered by the country people and eaten as salad.

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[*] This resemblance is described by our immortal bard Shakspeare, in Love's Labour Lost.

[†] Vide Gard. Dict.

SENSIBLE QUALITIES. This plant has the same sensible qualities as water-cress; every part of the plant is inodorous; its taste is slightly bitter and pungent, but it has not been chemically examined. A decoction of the flower is bitter.

MEDICAL PROPERTIES AND USES. The officinal part (the flowers,) was first brought into notice as an anti-spasmodic, on the authority of Sir George Baker, who read a paper in the year 1767, at the London College, recommending these flowers as a remedy in convulsive disorders.* In this account Sir George relates five cases wherein the flowers were successfully used, viz. two of chorea sancti Viti, one of spasmodic asthma, one of hemiplegia, accompanied with convulsions on the palsied side, and a case of remarkable spasmodic affections of the lower limbs; the two first were cured in less than a month, the two second were also happily restored, but in the last case the patient had only experienced some relief from the flowers, when she was seized with a fever which proved fatal. In the *Manuel de Médecine Pratique*, &c. a case of incubus is related by Dr. Odier, of Geneva, in which the flowers of cardamine proved efficacious after several other anti-spasmodic medicines had failed. We are told by Greeding, who exhibited it in large doses, that he experienced but one instance of its good effects, out of a great number of cases.† At present they are seldom used. They are said to be slightly diuretic and diaphoretic, but have otherwise little sensible operation. The leaves were formerly considered antiscorbutic. The dose of the flowers when dried and powdered, is from half a drachm to two drachms, given from two to four times in the twenty-four hours.

Off. The Flowers and Leaves.

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* Medical Transactions, vol. i. p. 442; but their efficacy in spasmodic diseases had been previously noticed by Dale, Pharmacol. p. 204.

† Ludwig. Advers. Medico-pract. vol. iii. part iii. page 564.

RUMEX ACETOSA.

Common Sorrel.[*]

Class HEXANDRIA.—*Order* TRIGYNIA.

Nat. Ord. HOLORACEÆ, *Linn.* POLYGONEÆ *Juss.*

GEN. CHAR. *Calyx* three-leaved. *Petals* three, converging. *Seed* one, three-sided.

SPEC. CHAR. *Flowers* declined, male and female, on distinct plants. *Leaves* oblong, arrow-shaped.

THE genus Rumex comprises a numerous tribe of plants, natives of almost every country and climate;[†] ten species are indigenous to Britain. This native species, (the Acetosa) is a perennial plant, common in pastures, flowering in June. The root is slender, long and fibrous; the stalk rises erect, round, striated, from one to two feet high, and branched towards the top; the radical leaves are oblong, arrow-shaped, and stand upon long footstalks; those of the stem are sessile, placed alternately, amplexicaule, pointed, and slightly rolled back; the flowers are diœcious, produced in terminal branched spikes, arranged in half whorls, and stand upon short slender peduncles; the calyx consists of three ovate segments; the corolla is composed of three petals, shaped like the divisions of the calyx: both the calyx and corolla are partly tinged with a pink or reddish colour; the filaments are short and slender, bearing large double yellow anthers; the germen is triangular, supporting three short, simple, reflexed styles, with large bearded stigmata of a crimson colour; the seeds are naked, single, of a triangular shape. Some writers have referred this plant to the Lapathum Quartum of Dioscorides, and to the Lapathum Sylvestre, quod alii oxalidem appellant of Pliny. But as the word ὀξὺ has been indiscriminately used, both to signify sharp in regard to the

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[*] Fig. *a.* represents a radical leaf. *b.* and *c.* Male flowers, largely magnified. *d.* A female flower. *e.* The pistillum magnified, shewing the bearded stigmata. *f.* A single stamen. *g.* The seed. *h.* A petal, these three last magnified.

[†] Thirty species are cultivated in our botanic gardens.—*Hort. Cant.*

form of the leaves of a plant, and in respect to the taste, there may be some doubt whether these authors have been correct, in exclusively applying it in the latter sense, as in the name Acetosa.

Sensible Qualities. The leaves of this plant have no odour, but an agreeable acid taste, which depends upon the super-oxalate of potass they contain ; by drying, their acidity is much lessened. The expressed juice is greenish, and of rather an acid taste; it is not changed by sulphate of iron, and effervesces slightly with salt of tartar.

Medical Properties and Uses. The leaves of sorrel are refrigerant and diuretic, and are medicinally employed for the same purposes as the Oxalis Acetosella already described, we shall therefore refer our readers to that article, (vide vol. i. p. 44). The leaves of this plant taken in large quantities as food,* will be found of considerable efficacy where an antiscorbutic regimen is required.† We are told by Dr. Clark that the natives of Wermeland, on the confines of Sweden, in seasons of great scarcity form it into bread, and that it is not unsalutary.‡

Off. The Leaves.

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RUMEX AQUATICUS.

Water-dock.§

Class Hexandria.—*Order* Trigynia.

Nat. Ord. Holoraceæ, *Linn.* Polygoneæ *Juss.*

Gen. Char. *Calyx* three-leaved. *Petals* three, converging. *Seed* one, three-sided.

Spec. Char. *Flowers* hermaphrodite. *Valvelets* toothed, grain-bearing. *Leaves* linear.

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* In some parts of France it is cultivated as an edible vegetable.—*Ed.*

† Boerhaave Hist. Plant. 4 B. part ii. p. 540.

‡ Travels, &c. part. iii. p. 90. 4to. *Lond.* 1823.

§ Fig. *a.* the corolla enclosing the seed. *b.* A flower a little magnified, shewing the anthers. *c.* A leaf as it proceeds from the lower part of the stem.

THIS indigenous plant is a native of Britain, and is found growing in wet ditches, pools, and on the banks of rivers, flowering in July and August. The root is perennial, thick, large, externally of a dark blackish colour, internally whitish; the stem rises erect to about five feet in height, channelled, smooth, and towards the top branched; the leaves on the upper part of the stem are long, narrow, and on the flower spikes linear and pointed: those which arise from the lower part of the stem, are near a foot and a half in length, obcordate, somewhat indented at the edges, and stand upon long channelled footstalks; the flowers are numerous, and hang in whorled spikes upon slender peduncles; the calyx is permanent, and divided into three narrow, pointed segments; the corolla consists of three narrow, ovate, pointed petals; the stamens are short, slender, and support erect double anthers; the germen is triangular, and supports three reflexed styles, terminated by rough stigmata; the capsule is formed of the petals, which by approaching each other form a triangle, and in this state are called valves; these are ovate, pointed, slightly notched towards the base, and marked with a small linear grain, extending down the middle of each valve; the seed is solitary, ovate, triangular.

This species of Rumex, is the Βρεταννικη ἡ Βεττονικη of Dioscorides, and under various synonyms has been generally thought to be the Herba Britannica of the ancients,* so celebrated for the cure of the scurvy, and some cutaneous diseases.

SENSIBLE QUALITIES, &c. The root (the officinal part) of this plant has little or no smell, its taste is very austere; the watery infusion strikes a deep black with sulphate of iron; it gives out its virtues both to alcohol and water.

MEDICAL PROPERTIES AND USES. The root of water-dock is strongly astringent, and was formerly much employed both as an external and internal remedy, for the cure of scurvy†, particularly when the gums are spongy, and hæmorrhages ensue; and we are told by Linnæus,‡ that it is the only remedy which proves efficacious in the scurvy of the Laplanders, when the ulcers are healed, and the patient is attacked with asthma. It has also been recommended in various other cutaneous diseases, and in obstructions of the viscera. The powdered root is said to be an excellent dentri-

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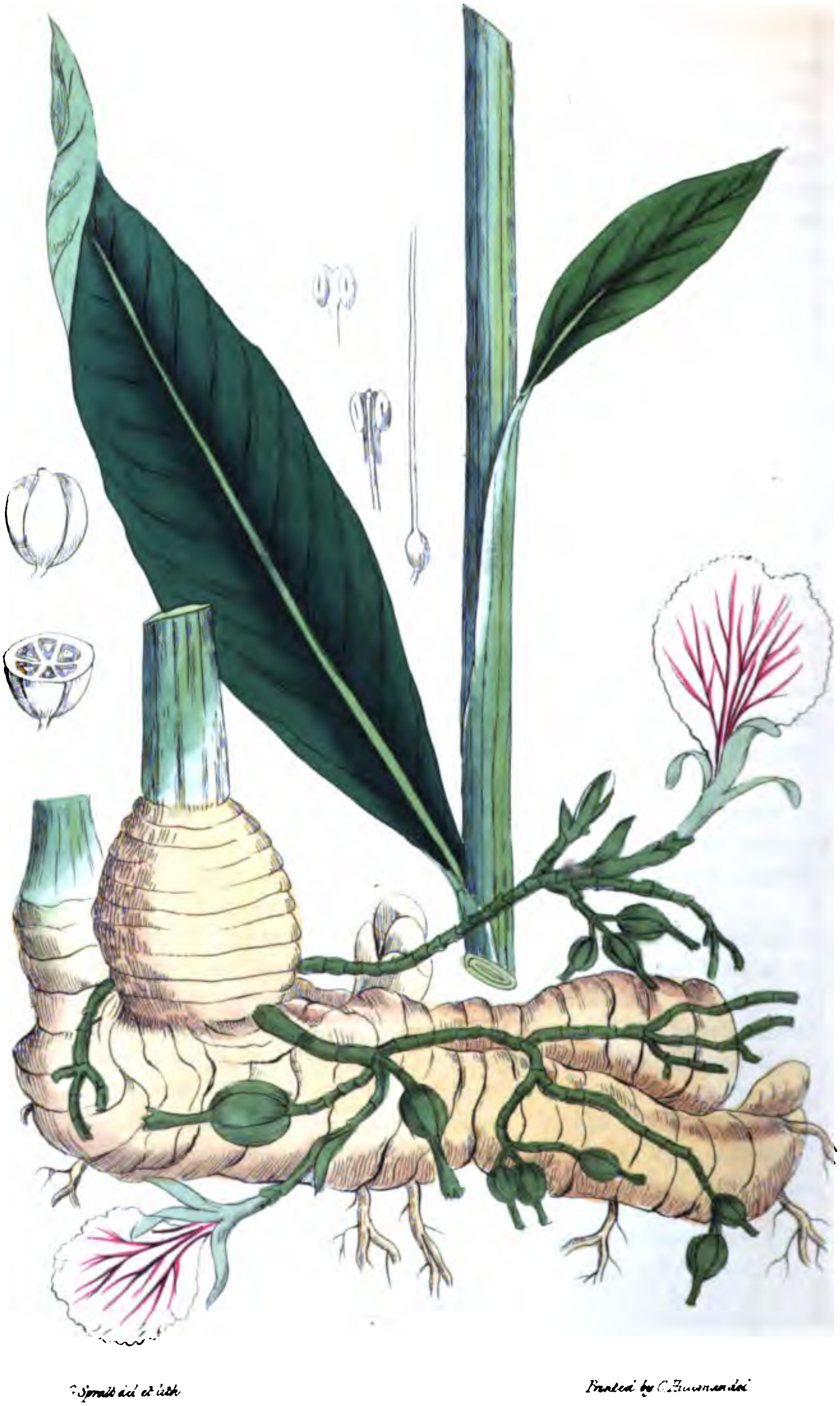
* See Dios. lib. iv. c. 2; also Plin. lib. xxv. c. 3.

† Vide Lind's Treatise on Scurvy, p. 264.

‡ Correspondence of Linnæus, vol. ii. p. 476.



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Matonia Cardamomum.

fice.* Many other species of dock were formerly much extolled as efficacious remedies, and were officinal herbs; but with the march of intellect they have marched out of our pharmacopœias, and given place to less efficacious exotic drugs. Dr. A. T. Thomson says, "I have ascertained that a decoction of one ounce of the sliced root of the common dock, *Rumex Patientia*, in a pint of water, is extremely efficacious in obstinate ichthyosis. In a full dose, about two ounces of the decoction purges freely; but at the same time improves the tone of the stomach." We would recommend a trial of this, as well as the Rumex Aquaticus, to our readers, having ourselves experienced much benefit from their use in several cases.

Off. The Root.

MATONIA CARDAMOMUM.

The Cardamom Tree.†

Class MONANDRIA.—*Order* MONOGYNIA.

Nat. Ord. SCITAMINEÆ, *Linn.* CANNÆ, *Juss.*

GEN. CHAR. *Capsule* three-celled, three-valved, with a central receptacle. *Anther* of two distinct lobes. *Filament* with two triangular lobes at the base. *Seeds* rough, tunicated.

SPEC. CHAR. *Leaves* elliptic, lanceolate. *Calyx* notched. *Capsule* ovate, oblong, obtusely triangular.

THIS plant is a native of the Indies, growing in great abundance on the mountains above Cochin and Calicut; on some mountains near the coast of Malabar, it is said to grow in such plenty, that the place is called the Mountains of Cardamoms. The root is perennial, tuberous, oblong, jointed, and sends off numerous fibres; the stems which emerge from the roots are from eight to ten, or more, in number, and rise to the height of ten or twelve feet,

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* Murray's App. Med. vol. iii. p. 344.

† Fig. *a.* a capsule. *b.* Section of ditto. *c.* The anthers. *d.* The style, laying between the lobes of the anther. *e.* The germen and style.

hollow, round, smooth, and about the thickness of the thumb, gradually tapering as the continued sheaths send off the leaves; at the lower part, to the distance of three or four inches from the root, they are clubbed and jointed; the leaves are alternate, sheathing, about four spans, or from ten to thirty inches long, and from three to four broad, smooth, entire, of a bright green, and striated with parallel veins, the under side paler; the midrib, on the upper side, pale green, on the under side, much deeper; the flower stalks proceed from the lower part of the stems, close against the roots, and creeps along the ground, articulated, and about a foot and a half or two feet in length; the flowers are produced in racemes or panicles, much branched, and proceed from the articulations; the flowers are alternately accompanied with small, ovate, acute bracteas; the calyx is monophyllous, inferior, double, tubular, and divided at the brim into three segments; the corolla is monopetalous, funnel-shaped, the tube longer than the calyx, the brim four-cleft, the three outer segments long, narrow, and of a pale straw colour, the centre one large, broad, concave, and irregularly oval, and marked with purple stripes; the filament is large, broad, slightly grooved, and supports a large double emarginate crestless anther, divided into two lobes by a deep fissure; the germen is inferior, globular, and supports a slender style, (the upper part of which lies in the fissure formed by the two lobes of the anthers); stigma funnel-shaped and ciliated; capsule a trilocular berry; when fresh, oblong, fleshy, and smooth; when dried, coriaceous, and of a brownish colour; seeds small, numerous, roundish, somewhat angular, and of a dark brown colour.

The plant which affords the officinal cardamom seeds of our pharmacopœias, was long unknown or its botanical character but imperfectly described. By former botanists it was generally considered as a species of Amomum,* but the identical *species* was never precisely ascertained, until Mr. White, surgeon, on the Bombay establishment, communicated to the Directors of the East India Company, the botanical description and natural history of the plants which yield the true cardamom seeds of commerce,† which led to the formation of a new genus, under the title of *Elettaria*, so named from the Máléālic word, *Elettari*,[*] the appellation given to this plant on the coast of Malabar, where it is produced in great abundance.[†]

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* The Edinburgh College supposed the seeds to be the product of the Amomum Repens (first discovered by Sonnerat); but the Dublin College, and most of the continental pharmaceutical writers, have ascribed them to the Amomum Cardamomum of Linnæus.

† Vide Linnæan Transactions, vol. x.

The name (Matonia Cardamomum) by which this plant is now distinguished in the London Pharmacopœia, we learn, was suggested by the late Sir J. E. Smith, in honour of Dr. Maton.[‡] The cardamom seeds imported into Europe, have been distinguished by the names of Cardamomum Majus,[§] Medium, and Minus, (the former of which is now better known under the name of Grains of Paradise); but whether either of these is the Amomum Verum of the ancient Greeks, we cannot satisfactorily ascertain.

For the following account of the cultivation of the cardamom plant, as practised at Malabar, we are indebted to Mr. White's paper on the subject,[‖] and which, we presume, will not be uninteresting to our readers.

"The spots chosen (for these plantations or farms) are either level or gentle sloping surfaces on the highest range of the Ghaûts, after passing the first declivity from their base. The extent of climate hitherto known to produce them, lies between 11° and 12° 30′ north latitude, or thereabouts. The months of February and March are, on account of the prevailing dry weather, selected as the most proper for commencing their labours; the first consists in cutting down the large and small trees promiscuously, leaving of the former standing, at nearly equal distances, certain tall and stately individuals, adapted to that degree of perpendicular shade which experience teaches them to be most favourable for the future crops. The grass and weeds are then cleared away, and the ground disencumbered from the roots of the brushwood; the large trees lie where they fall; the shrubs, roots, and grass, are filled up into different small heaps, and their spontaneous and gradual decomposition fertilizes the space they cover.

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[*] Originally given to this tribe of plants by Van Rheide, in his Hortus Malabaricus.—*Ed.*

[†] Ainslie's Materia Indica, vol. i.

[‡] We are inclined to think that the modern name (Matonia) given to this plant, is calculated to create botanical confusion, there being but little doubt but it is the identical Amomum Repens of Sonnerat, and Elletari of Van Rheide.—*Ed.*

[§] The Amomum Grana Paradisi of Linnæus. The seeds of this species of Amomum are considerably more pungent, but less fragrant, than the officinal cardamoms; they are seldom prescribed medicinally, but we have known them used by druggists, as a cheap substitute, in compounding the officinal preparations of the pharmacopœias.—*Ed.*

[‖] Transactions of the Linnæan Society, vol. x.

"As the cardamom plants spring up from scattered seeds dormant on the spot, or washed thither by rains from the adjacent parts; we do not find any regularity in their disposition, nor is the industry of the natives exerted to correct this. Accordingly, we see them variously grouped; in some places crowded and extremely luxuriant, in others thin and stunted; some roots sending forth from twenty to thirty stems, two-thirds or three-fourths of which bear; others from eight to twelve, and down to four or five. Hence it is difficult to calculate the rate of produce of any one plant. Each stem sends forth from two to four strings of fructiferous panicles; from these issue, alternately, short clusters bearing from two to three pods. The length of the common string or stalk varies from four inches to eighteen, and is sometimes two feet; but these last extremes are not fertile, in proportion. In good years, from four to six plants will yield of dried pods one dungally, a measure of capacity equal to four pints Winchester." After the operations, (above described) no further labour is bestowed for four years. At the revolution of the fourth rainy season, and towards its close, they look for a crop, and their hopes are rarely disappointed; this first effort of nature is generally scanty: for instance, only one-half of what is reaped the following year, and only one-fourth of what is yielded after the sixth rains, at which period the plant has reached its acme of prolific vigour. Now and then, however, this routine is interrupted, and its progress protracted, by causes, of which they are not very solicitous to investigate the nature: they remark, however, excessive and uninterrupted rains to be one source of failure. In the dry season succeeding to the first crop, they grub up the undergrowth of shrubs, and clear away the weeds and grass, laying them up as before in heaps to rot: this process of cleansing being yearly repeated, the same spot will continue productive for fifty years or upwards. The barren state of the Ela-Kandy[*] is replaced by the establishment of another, on a fresh site, and with similar properties to the former; in the choice of which they can never be at a loss, from the great extent of mountain and wood in a state of nature; and the same operations repeated, the customary routine of crops will follow.

The abundance of crop is best insured by a moderate routine of weather, with respect to dry and wet; the extremes of each are injurious: they dread most, however, deluging rains, particularly for the young plantations, and during the flowering season, which commences on the first fall of the rains in April and May, and continue for two months. The flower being very delicate, and the recumbent and repent posture of the fruit-panicles, exposes them particularly to the bad effects of drenching moisture. In August and September the pods increase and acquire the greatest size. In the first half of October they begin to ripen; then the gathering of the early part commences; the ripening proceeds through all that month and November. A longer continuance of the rainy season may protract the final gathering till the middle of December. About a fortnight earlier than here stated, the cardamoms on the western or sea-side of the Ghaüts are gathered. A dry day being chosen, the fruit-stalks are plucked from the roots, carried to their houses, and laid out to dry on mats placed upon a threshing-floor; a series of four or five days is sufficient to complete the desiccation.

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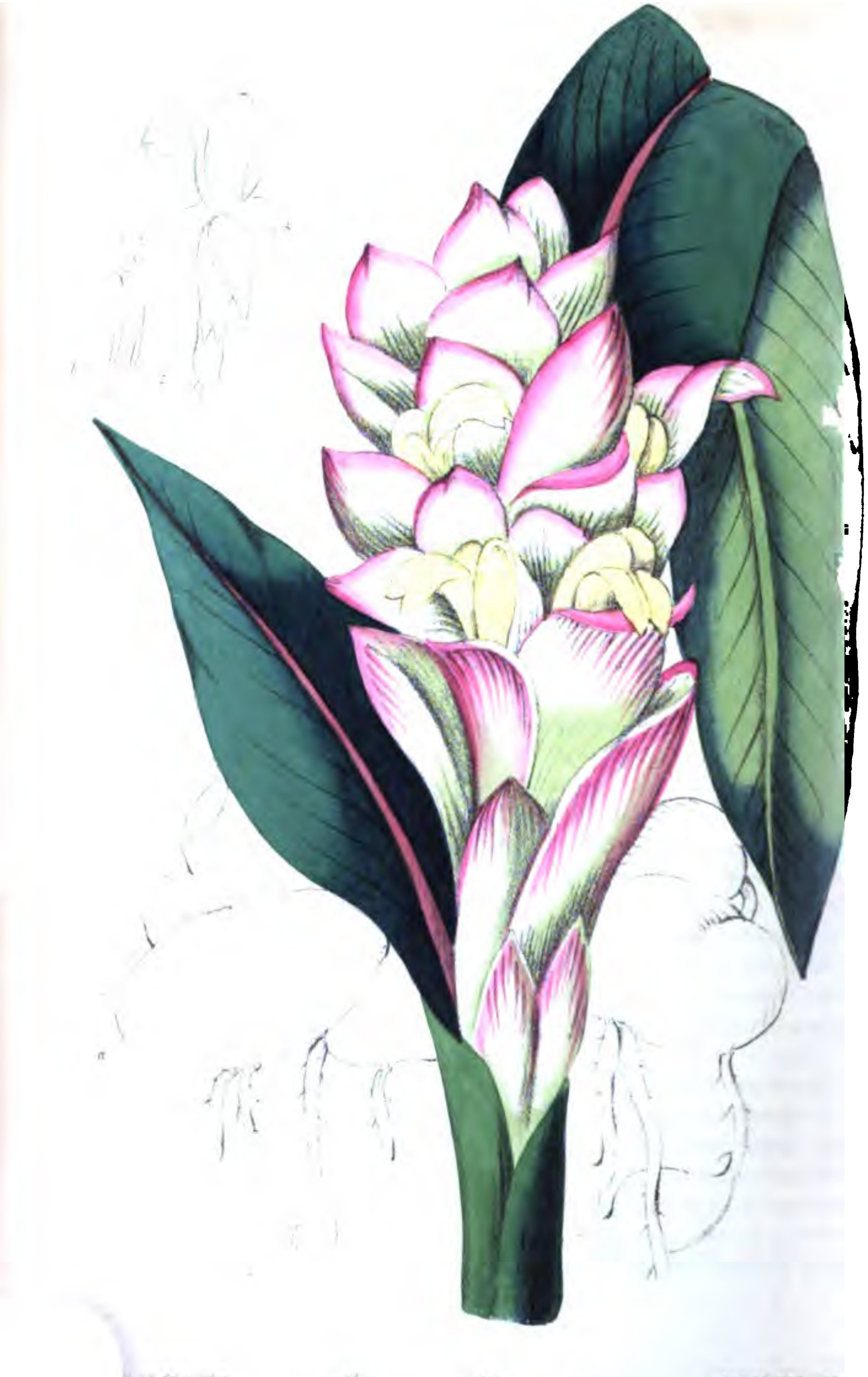
[*] The Malabar term for the plantation or plot of ground.

The pods being extricated by being stripped with the finger, are separated into three or four sorts, denominated from their respective qualities: 1. Talli-kai, the head fruit; 2. Nadu-kai, the middle; and 3. Poudo-kai, the abortive fruit. The last being thrown away, the two former are mixed together; the purpose of the separation being to ascertain the relative proportions, and to render the whole uniform and marketable. "The bundles thus prepared by the cultivators, are immediately carried down to shops, or little storehouses, erected by Mopla merchants or agents in different places along the whole range of hills, and at a little distance from the farms. Here they are subjected to another and final operation by the venders to the wholesale merchants on the coast. This consists in holding them over a gentle and slow fire in flat baskets, while assistants continue rubbing them betwixt their hands for a certain time, which has the effect of detaching what remains of the permanent calyx and foot-stalk, or other adhering membranes. The cardamoms are now weighed for the purpose of ascertaining the respective quotas of rent payable by the different farmers. The result of this is expected to correspond with a previous estimation of the quantity of the crops, taken on the ground before they arrive at maturity; on the approach of which, an official deputation, consisting of public officers, and some of the head men of the country, well acquainted with the subject, repair to the Ela-Kandys attended by the proprietors, and there make the calculation from the combined consideration of the extent of ground, age of the plantation, and the general appearance of the fruit stalks then in full bearing. Four or five of the visitors, whose interests are supposed to be neutral, and equally unbiassed betwixt Government and the Ryot, successively and seriously deliver their opinion, from the average of which the official attendants strike a mean, and mutual satisfaction is generally the consequence. The duties or customs, are paid only on exportation from the province; they amount to twelve per cent., and the average price is rated at twelve hundred rupees per candy of 640 pounds avoirdupois. "The total produce of Wynaud may amount, one year with another, to something above fifty candies, perhaps fifty-six; and this grown on an extent of more than one hundred miles, reckoning the sinuosities and angles of the hill. The kingdom or country of the Coorja Rajah, produces less than ten or fifteen candies. The whole site of growth of this spice on the continent of Hindostan, extends from Soubramany Ghaût, nearly due east from Mangalore to Mannaar Ghaût, in the same direction from Calicut."

Sensible and Chemical Properties. Cardamom seeds have a grateful odour, and an aromatic pungent taste, on being chewed they impart a glowing warmth in the mouth. These qualities are completely extracted both by water and alcohol. The watery infusion is turbid, somewhat thick; its colour is changed by the addition of sulphate of iron, but yields a flocculent precipitate with muriate of mercury, acetate of lead, alcohol, and several of the acids. Distilled with water, they yield an essential oil (which swims upon the water) of a yellow colour, and a very pungent taste, with the odour of the seed. On inspissating the alcoholic tincture, a part of the flavour of the cardamoms rises with the spirit, but the greatest part remains behind, concentrated in the extract, which smells moderately of the seeds, and has a pungent aromatic taste, very durable in the mouth, and rather more grateful than that of the seeds in substance. The ethereal tincture is of a yellowish green, and when evaporated on water, leaves neither resin nor extractive, much essential oil floating on it. We must therefore conclude that these seeds are entirely composed of mucus, fecula and essential oil.

Medical Properties and Uses. Cardamoms are cordial, carminative and antispasmodic; when taken in moderate doses they gently stimulate the stomach and promote digestion: being less stimulating than pepper and other spicy aromatics, they form an useful adjunct to bitters in dyspeptic complaints; and also to aperient medicines in flatulent colic, &c. Cardamoms may be given in powder, in doses of from five to twenty grains, but are more frequently taken



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Curcuma Zedoaria

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in the form of tincture, of which the dose is from half a drachm to two drachms.

Off. The Seeds.
Off. Pp. Tinctura Cardamomi, L. E. D.
Tinctura Cardamomi Composita, L. D.

Cardamoms also form one of the ingredients in many of the compound medicines of the pharmacopœias.

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CURCUMA ZEDOARIA.

Zedoary[*].

Class MONANDRIA.—*Order* MONOGYNIA.
Nat. Ord. SCITAMINEÆ, *Linn.* DRYMYRRHIZÆ, *Juss.*

GEN. CHAR. *Anther* double, two-spurred. *Filament* petal-like, three-lobed, central lobe bearing the anther.

SPEC. CHAR. *Leaves* broad, lanceolate, petioled.

THIS is a perennial plant, a native of the East Indies, Ceylon, and Malabar, flowering in June and July; it is also a native of Otaheite. It delights in dry open situations, and where the soil is sandy.

The root is tuberous, fleshy, externally of an ash colour, internally grey; the flower stem is short, rising very little above the ground, and covered with sheaths formed of the broad footstalks of the leaves; the leaves are radicle, large, nearly elliptical, pointed, veined, of an uniform green colour, and stand upon broad petioles; the inflorescence is a terminal, loose spike; the calyx is small; the corolla is monopetalous, formed of a long slender tube, divided at the mouth into six segments, three of which are long, narrow, spreading, and inserted before the others; two of the other segments are erect, ovate and pointed; the third is deeply cut into two ovate divisions; the filament is petal-like, three lobed; the anther is double, and placed on the middle lobe of the filament; the germen is superior, roundish, style about the length of the tube, the upper portion of which passes through the groove formed by the two lobes of the anther; stigma roundish and slightly bilabiate; the capsule is ovate, or somewhat triangular, divided into three cells, and as many valves, each cell contains many small seeds.

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[*] Fig. *b.* the coralla and calyx. *c.* The anthers and style.

We are partly indebted to that indefatigable botanist, Dr. Roxburgh, for ascertaining the precise species which yield the zedoary of commerce. Whether this drug was known or used by the ancients, it is no easy task to ascertain; by some it is supposed to be the Costus of Dioscorides, the Guiduar of Avicenna, and the Zerumbet of Serapion. Later botanists do not appear to agree as to the precise genus to which this plant should belong. Dr. Andrew Duncan, Jun., on the authority of Wildenow, ranks it as an Amomum,* whilst Dr. A. T. Thomson follows that able botanist, Mr. Roscoe, who separates this plant from the genus Amomum, and places it with the Curcuma.† The Kæmpferia Rotunda of Linnæus, is also said to yield the zedoary of the shops.‡ We are inclined to think that the zedoary roots of commerce are the produce of the three species of plants above named. They are all natives of the same soil, and produce roots which, in their external appearance and sensible qualities, differ but little from each other. We are told by Dr. Ainslie, that the best roots come from Ceylon. In Lower India the root is generally exposed for sale, cut into small round pieces about the third part of an inch thick, and an inch and a half or two inches in circumference.

SENSIBLE AND CHEMICAL PROPERTIES. The odour of zedoary root is fragrant, slightly resembling that of camphor, its taste is aromatic, somewhat bitter and slightly acrid; these qualities it imparts to water, but more perfectly to spirit. In distillation with water it yields a thick ponderous essential oil of a greenish colour, smelling strongly of the root; its taste is very hot and pungent; by keeping it deposits camphor. The constituents of zedoary root are chiefly aromatic and bitter principles combined with a large proportion of fecula. From the analysis of M. Bucholz, 1008.7 parts gave the following products, volatile oil 14.2, balsam 36., extractive 117.5, gum 45., starch 116., lignin 128., tragacanthin 90., gummy extractive 312., moisture 150. Zedoary root when good should be of an ash grey colour externally, and of a pale brownish red internally: the pieces should be firm

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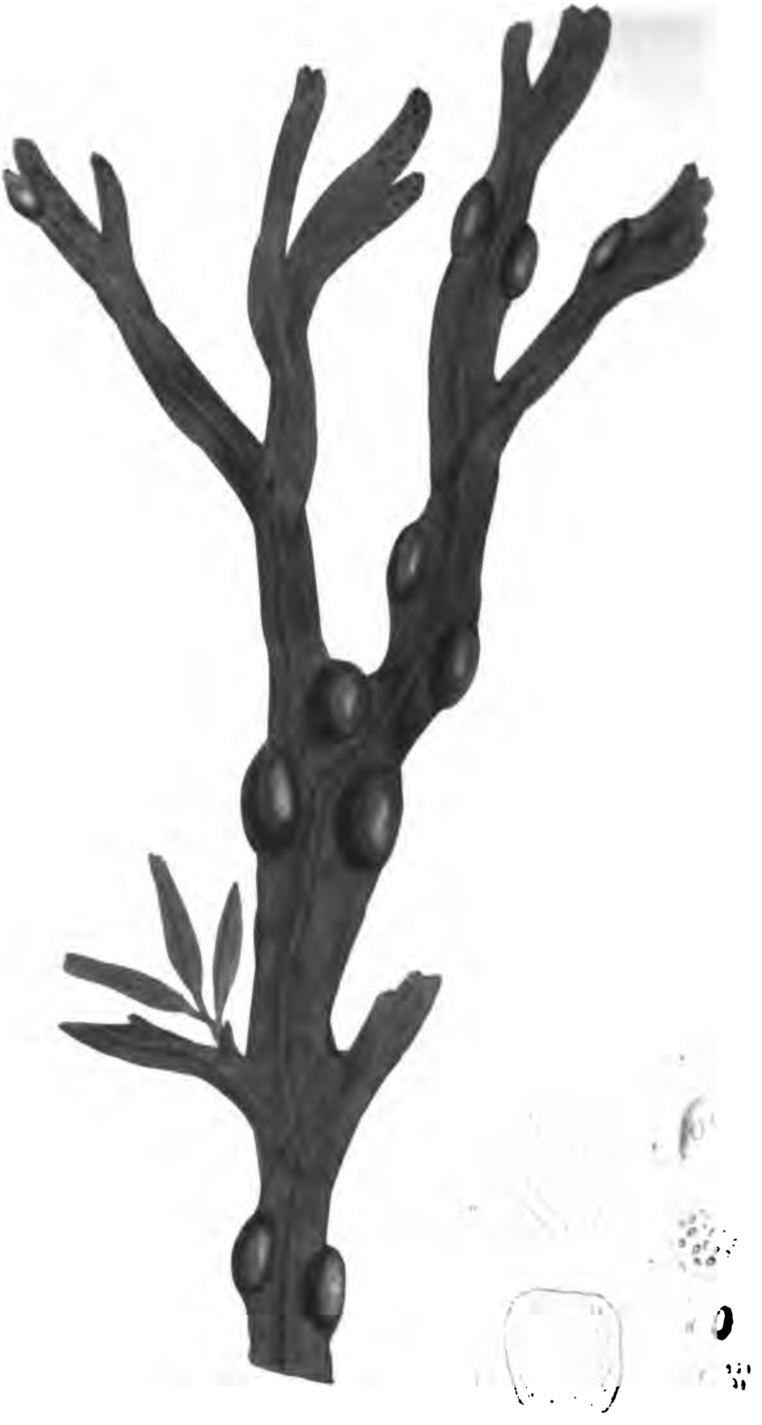
* Edinburgh New Dispensatory.

† London New Dispensatory.

‡ Woodvill Med. Bot. 2d. edit. p. 740.



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Fucus Vesiculosus.

and heavy, neither worm eaten nor very fibrous, about the thickness of the little finger, and two or three inches in length.

Medical Properties and Uses. The root of zedoary is esteemed tonic, carminative and cordial, and as such it formerly entered into the aromatic confection of the London Pharmacopœia. In modern practice it is very little used, although as a stomachic it is certainly a very agreeable medicine. By Avicenna,* and the Arabians it was highly extolled, and esteemed as an antidote for almost every disease. The modern Arabs esteem it to be tonic, deobstruent and aphrodisiac; and the Hindoos make use of it in their bathings and purifications.

Off. The root.

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FUCUS VESICULOSUS.

Bladder-wrack.†

Class CRYPTOGAMIA.—*Order* ALGÆ.

Nat. Ord. ALGÆ.

GEN. CHAR. Male. *Vesicles* smooth, hollow, with villose hairs within, interwoven.

Female. *Vesicles* smooth, filled with jelly, sprinkled with immersed grains, prominent at the tip. *Seed* solitary.

SPEC. CHAR. *Frond* flat, linear, dichotomous, ribbed, entire. *Vesicles* in pairs.

THIS species of Fucus is a perennial plant, bearing its fructification in the spring: it is a native of Britain, growing on our shores and rocks; it forms one of a very numerous tribe of plants, generally known under the popular name of sea weeds. This plant does not appear to have been known to the ancients, as we have no account of it till the time of Clusius, who describes it under the name of Quercus Marina, or sea oak. It is one of the most common of the Fucus tribe that is met with on our shores, and on some parts of the coast it is cast up on the beach, and grows in such abundance, as to become a very valuable product to the proprietors of the rocky shores. In Scotland it is known under the names of Kelp-ware, black tang, or strawberry-ware; this latter name is given to it when the recepticles are large and swollen.

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* Vide Canon. Med. lib. ii. tract. ii. p. 118.

† Fig. *a.* longitudinal section of a vesicle. *b.* Part of a receptacle magnified. *c.* Tubicle. *d.* Seeds. *f.* Contents of a seed. *e.* Horizontal section of a receptacle.

The root is an expanded, black, woody, callous disc. The frond is smooth, glossy, flat, winged, of a dark olive green colour, becoming paler near the apices; every where linear, dichotomous, from one to four feet loug, and furnished through its whole length, with a midrib of a blackish colour, as thick as a goose quill at its base, but gradually growing pale and thin. The substance of the frond is coriaceous, tough and flexible, but when dried becomes brittle. In the membranous part of the frond, there is found immersed spherical vesicles, varying in size from a pea to a hazel-nut, always close to the midrib, externally smooth, and their cavity full of air. The fructifications consist of compressed, fringed resceptacles, solitary or twin, placed at the end of the branches; in form roundish or elliptical, from one fourth of an inch to one inch or more long, perforated and filled with a tasteless pellucid mucus, through which passes anastamosing fibres forming a sort of net work. The whole plant when dried, becomes of a dark blackish colour and very brittle, and often covered with a saline efflorescence.

This and some other species of Fucus* are used for the manufacture of kelp (an impure carbonate of soda), this is chiefly done in the month of July and August, when round pits or basins are formed in the earth or sand on the beach; in the bottom of which, a fire is kindled with turf or peat, and kept up by constantly adding a supply of sea-weed sufficiently dry just to burn; when the pit or furnace is nearly full of the fused sea-weed, iron rakes are rapidly drawn backward and forward through the mass, to bring it to an uniform state of fusion; after which, (when cool) it is broken into pieces, and removed to the store-house for use.

QUALITIES, MEDICAL PROPERTIES, &c. This plant has a slight but peculiar odour, and a nauseous alkaline taste, similar to rat of soda; when burnt in close vessels it yields soda and charcoal; hich last, has been named *Æthiops Vegetabilis.* Its medicinal roperties are very slight, chiefly depending upon the portion of oda which it contains: when burnt, it is supposed to possess some eobstruent powers, as such, it has been exhibited in bronchocele nd scrophulous affections. The mucus of the vesicles has long been popular remedy as an external application to the joints in rickety hildren; and Dr. Russell found it an excellent resolvent when used s an embrocation to scrophulous swellings. But the principal use which this plant has been applied is in the manufacture of kelp, before noticed; this latter substance has been found to contain portion of that newly discovered elementary substance, named *dine.*[*] To this substance and the soda, the remedial efficacy of e fucus must be attributed.

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* Fucus Bulbosus, Fucus Digitatus, Fucus Saccharinus, Fucus Nodosus, and Fucus Serratus, are chiefly employed on our shores.

Iodine. This substance was discovered in 1813, by M. Courtois, manufacturer of nitre in Paris, in the mother waters of soda, as is obtained from sea-weed.[†] Iodine is a simple substance, its ame being derived from the Greek ἰωδὴς, on account of the violet olour of its vapour. Iodine (at the ordinary temperature) is a solid ody, in the form of small greyish crystals with metallic lustre; its dour is pungent, its taste acrid, and when applied to the skin stains of a brownish yellow colour. It fuses at 338° Fahr. and volatilizes t 347° Fahr. forming a very beautiful violet-coloured vapour. This apour, when enclosed in a receiver, re-condenses into crystalline cales. Iodine is soluble in ether, and in spirit of wine; water only issolves about $\frac{1}{7000}$th of its weight. Iodine is obtained, according Dr. Ure, by the following formula: "Take eight fluid ounces of the rown liquid which drains from the salt, which the soap-makers make se of who employ kelp, boil up, and evaporate to dryness; heat it to 30° Fahr. and add one fluid ounce of sulphuric acid, diluted with its wn bulk of water; when the mixture cools, separate the crystals of he salts, which will form in it, by filtration through a woollen cloth, nd add to the fluid poured into a matrass, 830 grains of black oxide f manganese in powder. A glass globe is then to be inverted over he mouth of the matrass, and the heat of a charcoal chauffer being pplied, iodine will sublime in great abundance. It must be washed out of the globe with alcohol, then drained and dried on plates of glass, and purified by a second sublimation from dry quicklime."

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[*] Iodine has been obtained from many species of marine plants, viz. Fucus Digitatus ucus Serratus, Fucus Vesiculosus, Fucus Nodosus, Fucus Saccharinus, &c. Ulva avonia, Umbilicalis, Linza, &c.

[†] These waters are obtained by burning the different fuci which grow on the sea-hores, lixiviating the ashes, and concentrating the liquor.

Iodine has the property of forming acids with hydrogen, oxygen and chlorine. Iodine has great affinity for hydrogen, and takes it from a great number of bodies, and forms with this gas the hydriodic acid, which is composed exclusively of iodine and hydrogen. This acid is in the form of a colourless gas, which has a strong taste and a penetrating odour, it reddens the tincture of turnsol, and extinguishes burning bodies; it is rapidly absorbed by water.* Starch is the most delicate test to detect the presence of iodine, any solution containing iodine in an uncombined state becomes a fine blue colour on the addition of a small quantity of starch.

SENSIBLE EFFECTS OF IODINE ON MAN. This substance appears to act as a general stimulus, increasing the action of the arterial system; when continued for an undue length of time it produces general emaciation, and wasting of the testes and mammæ; in larger doses, it produces nausea and vomiting, and subsequent inflammation of the stomach. We are told by Dr. Gairdner, that when this substance is exhibited injudiciously, it produces a great and peculiar depression of the spirits, attended with tremor and anxiety. Dr. G. also found the emaciation and cholera attending the exhibition of iodine, extend to very untoward results.†

MEDICAL PROPERTIES AND USES OF IODINE. This substance was first introduced into medical practice by M. Coindet, a physician of Geneva, who employed it for the cure of goître, with great success; subsequently many physicians both in France and Switzerland, and likewise in this country, have used it with undiminished reputation. From the success attending its exhibition for the cure of goître, its effects have been tried in the cure of many other glandular diseases; and if confidence is to be placed in men whose names are an ornament to the profession,‡ we have no reason to doubt but Iodine will prove one of the most valuable articles of the Materia Medica. The diseases in which Iodine has been chiefly exhibited, are scrophula, white swellings, cancer, suppressed catamenia, and incipient pulmonary affections,§ proceeding from a scrofulous taint; paralysis, leucorrhœa, syphilitic enlargements, &c. Mr. Rickwood relates four cases of bronchocele, which were relieved or cured by this medicine, and considers it to be an excellent tonic in other diseases;* and Mr. Callaway, surgeon, of the Borough, has employed Iodine (we believe the tincture) in several cases of scrophulous enlargements of the glands, both of the surface and of the mesentery, with decided good effects.

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* For a full and particular account of the combination of iodine with the acids and alkalies, we refer our readers to the translation of Magendie's Formulary, by R. Dunglison.

† Essay on the Effects of Iodine, &c. by W. Gairdner.

‡ Dr. Gairdner, De Carro, Wagner, Hannemann, Baron, Roots, M. Magendie, Hufeland, &c. &c.

§ Case recorded by the late Mr. Haden.

Iodine has been exhibited both internally and applied externally; for the former purpose, the tincture of Iodine, or a solution of hydriodate of potass in distilled water, has been generally preferred. The following formulæ are given by Magendie:—

Tincture of Iodine.

Take of Alcohol at 35°, 1 once, (7 dr. 52½ gr. troy)
Iodine ......48 grains, (gr. 39. 36 troy)

This tincture should not be prepared long before it is wanted for use, as it soon deposits crystals of Iodine, and consequently loses its powers; the dose to adults is ten drops, two or three times a day, gradually increased to twenty or more.

Solution of Hydriodate of Potass.

Take of Hydriodate of Potass, 36 gr.
Distilled Water .... 1 once. Mix.

This solution has been given in doses of ten drops, gradually increased to twenty.

Ointment of Hydriodate of Potass.

Take of Hydriodate of Potass, 29½ gr.
Hog's Lard .... 1½ once. Mix.

This ointment has been used with decided advantage in the way of friction, in treating bronchocele or enlarged scrofulous glands; the complete resolution of which has followed the steady application of this remedy. This ointment has been generally made use of in the quantity of from one to two drachms, gently rubbed over the surface of the tumour night and morning: it has also been used in conjunction with the internal exhibition of Iodine. We must observe with regard to the above preparations, that the precise doses must be regulated according to circumstances, which the intelligent practitioner will be at no loss to discriminate.

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* Vide London Medical and Physical Journal, August 1823.

RHAMNUS CATHARTICUS.

Purging Buckthorn.[*]

Class PENTANDRIA.—*Order* MONOGYNIA.

Nat. Ord. DUMOSÆ, *Linn.* RHAMNI, *Juss.*

GEN. CHAR. *Calyx* tubular. *Corolla* none. *Scales* defending the stamens, inserted into the calyx.

SPEC. CHAR, *Leaves* ovate, serrated. *Thorns* terminal. *Flowers* four-cleft, dioecious. *Berry* four-seeded.

THIS species of buckthorn[†] is a native of Britain, commonly found growing in woods and hedges near brooks, flowering from May to June, and ripening its fruit the latter end of September and October. This shrub rises to the height of seven or eight feet; the stem is strong, woody, and much branched; the branches terminate in sharp strong spines; the leaves in facicles, are ovate, pointed, nerved, finely serrated, and stand upon short petioles; the younger ones downy; the flowers arise from the same buds as the leaves, are placed in clusters, and sustained on peduncles; there is no corolla; the calyx is of a greenish yellow colour, four-cleft, and pointed; the stamens (in the male flowers) are short; the filaments arise from the base of a small convex scale, and support round anthers. The female flowers consist of a calyx, similar to the male, and enclose the germen, which is round, supporting a slender style, and four-cleft stigma; the fruit is a round black berry, about the size of a pea

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[*] Fig. *a.* represents a female flower, magnified. *b.* A male flower. *c.* A section of a berry, shewing the seeds. *d.* A male flower, magnified, and spread open to shew the stamens.

[†] Twenty-one species of this genus are known and cultivated in our botanic gardens, of which the Rhamnus Catharticus, and Rhamnus Frangula, or berry bearing alder, are the only native species; the inner bark of the latter is both emetic and cathartic, but is seldom used medicinally; formerly it was an officinal medicine in some of the foreign pharmacopœias. The berries of the Rhamnus Infectoria, (a native of the south of Europe) are much used for dying yellow, and are imported into this country under the name of French berries.—*Ed.*

when ripe, containing four seeds, which are smooth, elliptical, flat on one side, and convex on the other.

This species of buckthorn has derived its specific name from its cathartic quality, the fruit in doses of about twenty of the berries proves briskly purgative; the inner bark is also a strong cathartic, and excites vomiting. It is said that the flesh of those birds which feed upon these berries is purgative.*

SENSIBLE AND CHEMICAL PROPERTIES. The odour of these berries is faint, and somewhat unpleasant; and the taste bitter, nauseous and acrid; they are very succulent, and the juice (before they are quite ripe) of a deep green, gradually becoming purple as they become thoroughly ripe. The watery infusion is purplish, with the smell and taste of the fruit; sulphuric acid changes its colour to red; nitric acid to a very deep red; alum water to violet; liquor potass to iron grey; and sulphate of iron to black. The expressed juice is called by the French, *Verd de Vessie*, or sap green, which is prepared by adding a little lime water or alum, and gum arabic, during the evaporation.

MEDICAL PROPERTIES AND USES. Buckthorn berries have been long received into the Materia Medica of the British colleges, but is seldom used in practice although it is in common use as a domestic medicine; and given in the form of the Syrupus Rhamni of the London and Edinburgh colleges, is a popular cathartic for children, especially among the poorer classes. Its disuse with the profession probably arises from its purgative effects, being generally accompanied with considerable thirst, dryness of the mouth and throat, and not unfrequently with severe griping. The berries in substance, and the expressed juice, were formerly much used as a hydragogue;† the former in doses of twenty of the recent, or double that number of the dried, generally proves powerfully cathartic; the expressed juice in doses of one fluid ounce produces similar effects.

Off. The Berries.
Off. Pp. Syrupus Rhamni, L. E.

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* Homberg, Mem. de l'Acad. dis. Sc. de Paris, 1712, p. 9.

† Boerhaave, De virib. Med. p. 308.

MYRTUS PIMENTA.

Pimento, Jamaica Pepper, or All-spice.[*]

Class ICOSANDRIA.—*Order* MONOGYNIA.

Nat. Ord. HESPERIDEÆ, *Linn.* MYRTI, *Juss.*

GEN. CHAR. *Calyx* five-cleft, superior. *Petals* five. *Berry* two or three-celled, many seeded.

SPEC. CHAR. *Leaves* oblong, lanceolate. *Flowers* mostly terminating the branches in trichotomous panicles.

THIS species of Myrtus is a native of South America, and the West India Islands, flowering in July. It is much cultivated in Jamaica, from whence the berries are chiefly imported into this country.[†] The Pimento tree was first introduced and cultivated in Britain by Mr. P. Miller, about the year 1789. In this country it is a stove plant, but requires a strong heat to produce its flowers in much perfection; neither does it rise to the height nor size that it does in its native soil. This tree often exceeds thirty feet in height, and two in circumference, much branched towards the top, and thickly beset with leaves; the stem and branches are covered with a greyish smooth bark; the leaves vary in form and in size, being more or less pointed, and from three to four inches long, petioled, veined, pointed, elliptical, of a deep shining green colour, and are produced singly, or two or three together; the flowers are produced in numerous trichotomous panicles, which usually terminate the branches; the calyx is persistent, and divided into four roundish segments; the corolla is composed of four ovate petals, placed opposite each other; they are small, reflexed, of a white colour, somewhat inclining to green; the filaments are numerous, spreading, longer than the petals, and support roundish anthers, of a pale yellow colour; the style is simple, erect, crowned with an obtuse stigma; the germen becomes a round, succulent, shining berry, (crowned with the persistent calyx) of a dark purple or black colour

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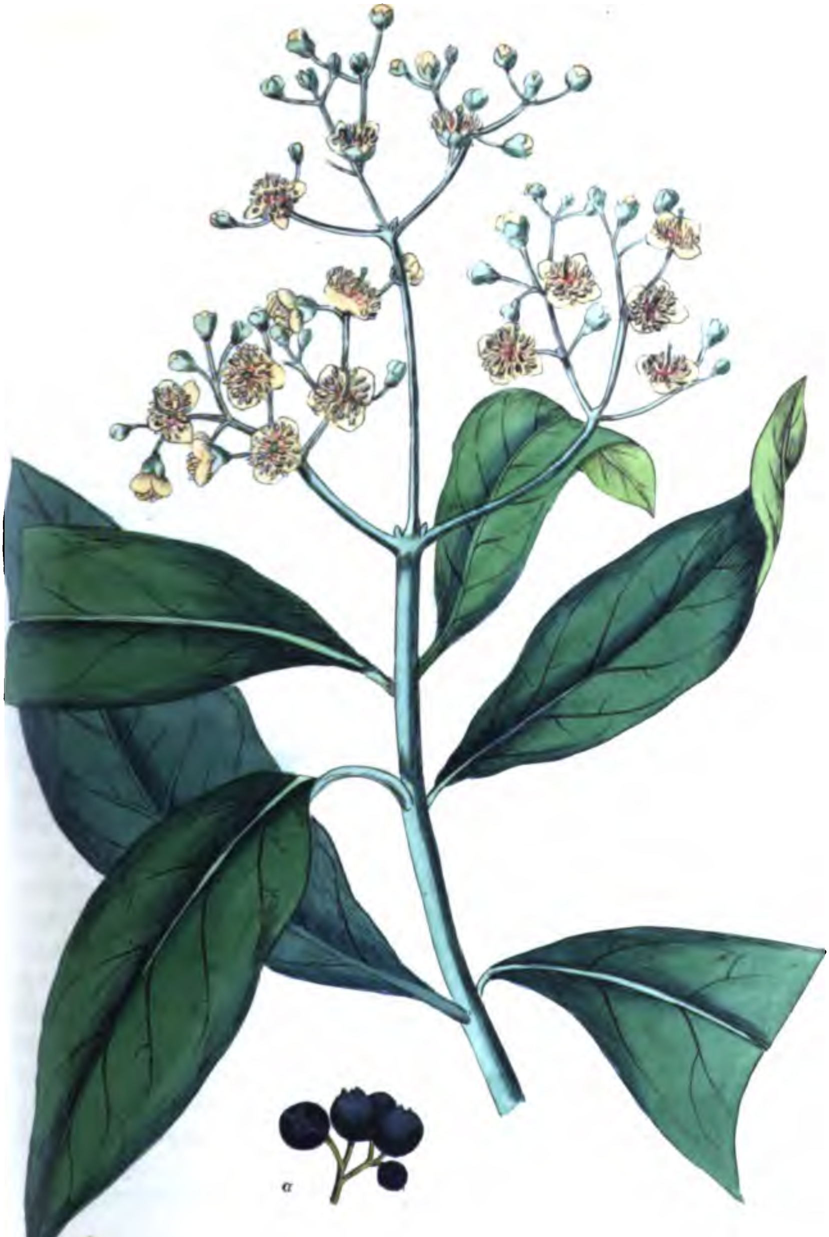
[*] Fig. *a.* the ripe fruit.

[†] Hence probably the name Jamaica pepper.



G. Spratt del et lithog. Printed by C. Hullmandel

Myrtus Pimenta

when ripe, and contains two kidney-shaped flattish seeds. Every part of this tree is extremely fragrant, and in the months of June, July, and August, when it is in full flower, it perfumes the atmosphere with its aromatic odour.*

The berries of Pimento or all-spice† are gathered for use when arrived at their full growth, but before they are perfectly ripe.

When picked from the branches they are exposed to the sun for several days, till they are sufficiently dried; this operation requires to be conducted with much care, observing that on the first and second day's exposure to the sun they must be turned frequently, and always carefully preserved from rain and the evening dews. After this process is completed, which generally takes from ten to twelve days, and is known by the colour and rattling of the seeds in the berries, they are packed in bags or hogsheads for sale.

SENSIBLE AND CHEMICAL PROPERTIES. Pimento berries have an agreeable aromatic odour, resembling a combination of cloves, cinnamon, nutmegs, &c.; the taste is warm and pungent, which is said to reside chiefly in the cortical part of the berry. The watery infusion is of a reddish colour, and turns black instantly by the addition of sulphate of iron, and a precipitate is slowly thrown down. Super-acetate of lead causes a dirty green, nitrate of silver a deep reddish brown, and nitrate of quicksilver a yellowish brown precipitate; the sulphuric and muriatic acids give rose-coloured precipitates; the nitric acid gives no precipitate, but turns the infusion yellow. The distilled water is extremely fragrant, hot, and spicy. On distillation with water, the berries yield a very fragrant essential oil, so ponderous as to sink in water, with a strong smell and flavour of the spice. To rectified spirits it imparts both its odour and taste; in distillation with alcohol it imparts but little of these properties, its active principles remaining concentrated in the inspissated extract. The ethereal tincture evaporated on water leaves a greenish yellow oil, a pungent nauseous resin, and some extractive. These berries also contain a portion of tannin and gallic acid.

MEDICAL PROPERTIES AND USES. Pimento has been long in use as a condiment for dietetic purposes, and much employed as a succedaneum for the more expensive aromatics. As a remedial agent it is not much used alone, but it forms an agreeable adjunct to many bitter and less grateful medicines. As an agreeable aromatic it is an useful substitute for the more costly spices, in all diseases requiring the aid of gently stimulating and cordial medicines.

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* We are told by Long in his History of Jamaica, that the leaves and bark are full of aromatic particles, so that the planters are extremely cautious of fire in all pimento walks, where, if it should once catch, it runs with great fury.

† This latter name appears to have been given to this fruit from the supposed resemblance its taste has to many different spices mixed together.

Off.	The Berries
Off. Pp.	Aqua Pimenta, L. E. D.
	Oleum Pimentæ, L. E. D.
	Spiritus Pimentæ, L. E. D.

◆

TANACETUM VULGARE.

Common Tansy.[*]

Class Syngenesia.—*Order* Polygamia Superflua.

Nat. Ord. Compositæ Discoideæ, *Linn.* Corymbiferæ, *Juss.*

Gen. Char. *Receptacle* naked. *Calyx* imbricate, hemispherical. *Florets* of the ray, three-cleft, obsolete,

Spec. Char. *Leaves* doubly pinnatified, deeply serrated, naked.

This species of tansy is the Αρτεμοια λεκτοΦυλλος of Dioscorides, it is an indigenous perennial plant, flowering in July and August, usually found growing on the borders of corn fields, roads and rivers. It is cultivated for medicinal and culinary purposes. The root is long, creeping, and fibrous; the stem rises to the height of two or three feet, erect, smooth, solid, striated, branched towards the top, and leafy, the upper part of a redish colour; the leaves are doubly pinnated, lesser pinnæ serrated, and of a dark green; the flowers are of a deep yellow, and terminate the stem and branches in a dense corymb; the calyx consists of numerous small imbricated squamæ, forming a perianthum of an hemispherical shape; the

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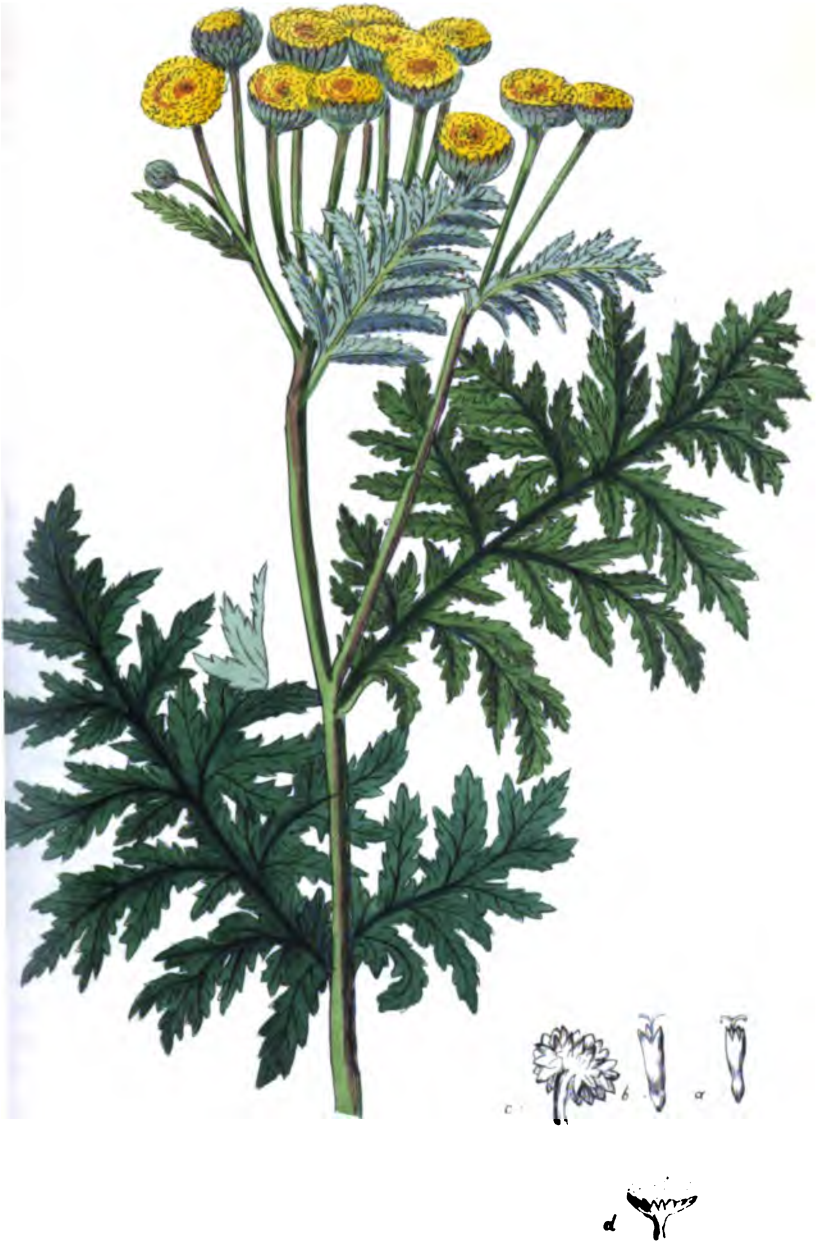
[*] Fig. *a.* a floret of the disc. *b.* A floret of the radius. *c.* The calyx. *d.* The receptacle.



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Tanacetum Vulgare.

florets are of two kinds, those of the radius are few, sometimes altogether wanting, and female; those of the disc numerous, hermaphrodite, tubular, and five-cleft. The female florets are also tubular at the base, and divided at the brim into three-pointed segments or teeth; the filaments are five, very short, slender, and furnished with anthers which unite and form a cylinder; the germens in both florets are obovate, small, and support a thread-shaped style crowned with a reflexed bifid stigma; the seeds, which are enclosed in the calyx, are naked, oblong, angular, and crowned with a narrow, marginate, membranous pappus; the receptacle is convex and naked.

"There are three varieties of this species of tansy, one with a curled leaf, which is called double tansy by gardeners; another with variegated leaves; and a third with leaves which have little scent; but as these accidentally have been produced from the seeds of the common tansy, they are not considered as distinct species."*

SENSIBLE QUALITIES, &c. The leaves and flowers have a strong, but not a disagreeable odour, and a bitter, somewhat aromatic taste; the flowers are more powerful but less unpleasant than the leaves, they give out these qualities both *to* water and spirit, most perfectly to the latter; the tincture made from the leaves is of a fine green; from the flowers, of a bright pale yellow. By distillation with water an essential oil of a greenish yellow colour, and smelling strongly of the herb, is obtained; the remaining decoction inspissated, affords a strong bitter sub-saline extract.

MEDICAL PROPERTIES AND USES. Tansy is stomachic, tonic, and anthelmintic; it has also been considered emmenagogue.† Hoffmann speaks highly of its efficacy as a vermifuge, particularly for expelling the lumbricus teres, or round worm, for which purpose the seeds have been substituted for those of the Santonicum, and with equally good effect.

We are told by Dr. Clarke, (vide Essays Physical and Literary, vol. iii. p. 438) that it has been found to be of great service in various cases of gout. Dr. Cullen however does not speak so highly of it, and later experience does not confirm the encomiums formerly bestowed upon it in this disorder. It has also been recommended in hysteria, particularly when arising from obstructed menstruation, and for this latter disorder it continues a popular medicine with the uninformed; as a warm bitter it is probably equal in medicinal powers to many other herbs possessing similar qualities.

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* Vide Miller's Gard. Dict.

† Bergius Mat. Med. p. 664.

The leaves and flowers are commonly taken in the form of infusion and drank as tea; the leaves when powdered may be taken in doses of one drachm or more two or three times a day.

Off. The Leaves.

◆

SCILLA MARITIMA.

Officinal Squill.[*]

Class HEXANDRIA.—*Order* MONOGYNIA.

Nat. Ord. CORONARIÆ, *Linn.* ASPHODELI, *Juss.*

GEN. CHAR. *Corolla* six-petalled, spreading, deciduous. *Filaments* thread-like.

SPEC. CHAR. *Flower* naked. *Bracteas* refracted.

THIS species of squill[†] is a perennial bulbous-rooted plant, a native of Spain, Sicily, the North of Africa, and the Levant, growing wild on the sandy shores near the coast; hence its specific name.

The Scilla Maritima was introduced into England early in the seventeenth century, and was cultivated in the botanic garden at Oxford in the year 1648. This plant appears to have been well known and esteemed for its medical properties in the early ages of Greece. Its introduction into medical practice is referred to Pythagoras or Empedocles.[‡] It is noticed by Dioscorides, Hippocrates, Galen, Aëtius, Celsus, Pliny, and the Arabian physicians.

The squill flowers in April and May; the root is perennial, large, pear-shaped, bulbous, composed of many thick, fleshy scales, and

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[*] Fig. *a.* the spike of flowers. *b.* The root. *c.* The top part of the leaf.

[†] Σκιλλη Dioscoridis.

[‡] Vide Haller, Bib. Bot. p 12.

furnished with numerous fibres, which issue from the base; externally the bulb is coated with scales of a reddish hue; internally it abounds with a tenacious juice; the stem rises to the height of two or three feet, round, smooth, and succulent; the leaves are radical, large, sword-shaped, pointed, smooth, and of a fine deep green; the flowers are produced in a long close spike, and stand on purplish peduncles; the bracteas are linear, twisted, and deciduous; there is no calyx; the corolla is composed of six ovate petals, of a whitish or pale flesh colour, with a reddish line in the middle; the six filaments are tapering, shorter than the corolla; the anthers are oblong, and placed transversely on the top of the filaments; the germen is roundish; the style about the length of the filaments, crowned with a simple stigma; the germen becomes an oblong, smooth capsule, marked with three furrows, and divided into three cells, each cell contains many roundish seeds.

Sensible and Chemical Properties. The root of the squill, when recent, abounds with a viscid juice, which possesses an extremely acrid and bitter taste, and when much handled will inflame the skin; its smell is subtle and penetrating, like that of horseradish; the expressed juice slightly reddens litmus paper. The dried roots or scales (the form in which it is commonly met with in the shops) are semi-pellucid, smooth, and brittle, and when chewed manifest an extremely bitter taste, without much acrimony. The constituents of squill are, an acrid principle, bitter extractive, mucilage, albumen and starch. Water, alcohol, proof spirit, and also vinegar, extract the active properties both of the recent and dried root. None of the active properties of squill rise in distillation with any of the above menstrua. Alkalies abate both the bitter and acrid qualities of squill; vegetable acids, on the contrary, render them more pungent. The acrid principle of squill is nearly lost if much dried by a degree of heat above 212°, or if long kept in the form of powder, and thus it becomes almost inert. Nitrate of mercury and superacetate of lead separate from the expressed juice white curdy precipitates; Gelatin throws down a copious precipitate; lime-water and the alkaline carbonates produce the same effect; sulphate of iron throws down a green precipitate; infusion of galls forms in it pale brownish flakes; ether digested on dried squill acquires a pale green hue, and when evaporated on the surface of water, a thin pellicle of very bitter, resinous matter is deposited, while the water acquires an intensely bitter taste, and yields copious precipitates, with solutions of acetate of lead and nitrate of silver. The following are the constituents of squill, according to the analysis of Vogel: tannin 24, woody fibre 30, saccharine matter 6, bitter principle or scillitina 34,[*] gum 6, in 100 parts dried squill.

MEDICAL PROPERTIES AND USES. Orfila classes squill among the acrid poisons; to many animals it manifests a poisonous quality, and in large doses produces death.[†] The recent root is so acrid, that if much handled it excoriates the skin. The general effects of squill in large doses are, vomiting, hypercatharsis, stranguary, bloody urine, convulsions, inflammation, and erosion of the stomach and bowels, gangrene and death.

In small doses squill operates as an useful expectorant and diuretic; it is also sometimes given as a general stimulant in typhus and other disorders. As an expectorant it is one of the most valuable drugs in the Materia Medica, and it proves particularly useful where the primæ viæ are loaded with mucous matter, and the lungs are oppressed with viscid phlegm. In dropsy it proves an excellent diuretic, either alone or in combination with calomel, in which case it is usually given in the form of pill or powder, as it is then less liable to excite nausea. Squill is also an useful medicine in many pulmonic affections when accompanied by active inflammation, ulcer, or spasms. The usual dose of squill in powder is from one to two or three grains three or four times a day. The officinal preparations are given in various doses according to the effects we wish to produce; most of the liquid compositions in doses of from half a drachm to two or three drachms; of the spirituous tincture from ten to twenty drops.

Off.	The Root.
Off. Pp.	Acetum Scillæ, L. E. D. Oxymel Scillæ, L. D. Pilulæ Scillæ comp. L. E. D. Syrupus Scillæ Maritimæ, E. Tincturæ Scillæ, L. D.

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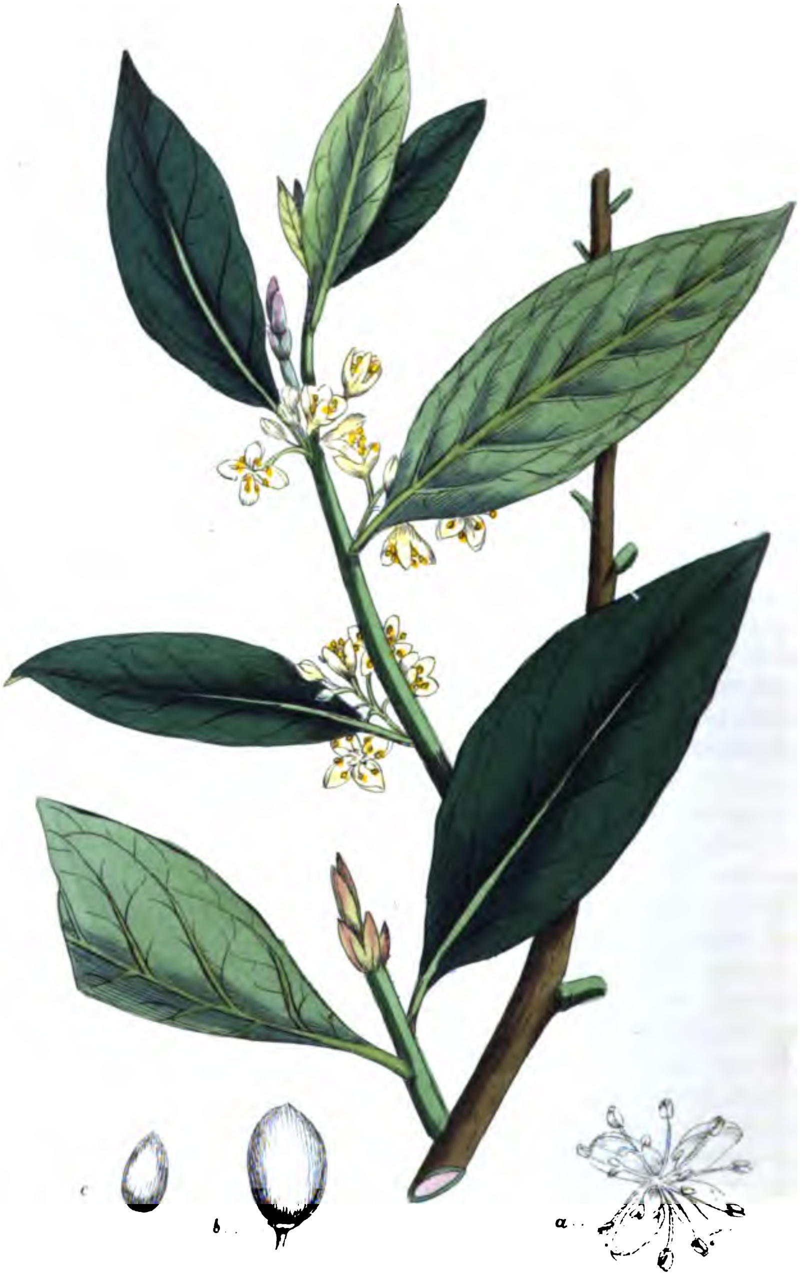
[*] Scillitina is white, transparent, breaks with a resinous fracture, and is pulverulent, but it attracts moisture rapidly from the atmosphere until it becomes fluid; its taste is intensely bitter, with some degree of sweetness, and it is very soluble both in water and alcohol.

[†] Orfila's Toxicology, vol. ii. p. 73, 74.



Laurus Nobilis.

lington St Strand

G. Spratt

LAURUS NOBILIS.

Common Sweet-Bay.[*]

Class ENNEANDRIA.—*Order* MONOGYNIA.

Nat. Ord. OLERACEÆ, *Linn.* LAURI, *Juss.*

GEN. CHAR. *Calyx* none. *Corolla* calyx-like, four or six-parted. *Nectary* composed of three two-bristled glands, surrounding the germen. *Filaments* interior, glanduliferous. *Drupe* one-seeded.

SPEC. CHAR. *Leaves* lanceolate, veined. *Flowers* dioecious, four-cleft.

THIS species of Laurus is a handsome evergreen; a native of the south of Europe, flowering in April and May. In Italy and Greece, its native soil, it rises to the height of twenty or thirty feet, forming a handsome tree; but in this country it scarcely reaches half the height, and can only be ranked as a shrub. It was first cultivated in England by Turner,[†] in the year 1562, and is now to be met with in many of our gardens and shrubberies.

The stem is much branched, and covered with a smooth bark, of an olive colour; the leaves are lanceolate, smooth, veined, entire, often waved at the margin, of a shining green, and stand erect upon the branches, on short, channelled footstalks; the flowers are male and female, upon different plants, and appear in clusters, three or four together; there is no calyx; the corolla is of a yellowish white colour, divided into four ovate leaves, which stand erect; the stamens vary in number from seven to thirteen, the innermost of which are glanduliferous; the style in the female flowers is very short; the germen is superior, and becomes an ovate berry; the seed of which is dark green, changing to deep purple or black as it ripens.

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[*] Fig. *a.* represents a male flower, largely magnified. *b.* The fruit. *c.* The seed.

[†] Turn. Herb. part ii. fol. 52.

This beautiful species of Laurus[*] was a distinguished favourite with the ancients, not only as a medicine supposed to possess great efficacy, but was likewise worn by them as a triumphal crown; hence probably its specific name *Nobilis*; it was also considered an emblem of peace, and called Laurus Pacifera.

SENSIBLE QUALITIES, &c. Both the leaves and berries have a fragrant odour, and an aromatic and somewhat astringent taste; the watery infusion is of a red colour, changing to a purplish hue by the addition of sulphate of iron; both the berries and leaves yield, by distillation with water, a portion of a very fragrant essential oil, of a greenish yellow colour, with the odour and taste of the berries; the former yield considerably more than the latter, and also yield by expression a quantity of insipid fixed oil. The distilled water from the leaves is impregnated with a small portion of prussic acid; upon this component probably the active property of the plant depends.

MEDICAL PROPERTIES AND USES. By former writers[†] this plant was held in great estimation as a carminative, stomachic, and sedative; hence the leaves and berries were much used in hysteria, obstructed menstruation,[‡] flatulent colic, &c.; but their internal use is now almost laid aside, although, from their containing prussic acid, we should suppose them possessed of considerable powers as a remedial agent. We are told by Dr. A. T. Thomson, that "having found great advantage from the use of prussic acid, largely diluted, as a local application in impetigo," he lately employed infusion of bay berries with nearly the same beneficial results. The leaves have long formed one of the ingredients (and probably the most active) in the decoction *pro fomento* of the London Pharmacopœia. The fragrance and agreeable aromatic flavour of the leaves have long recommended them for culinary purposes. The leaves were formerly given in the form of infusion, and the essential oil in doses of from one to five drops, on sugar, dissolved in spirit of wine, or mixed with mucilage: the expressed oil is also used as an external application to tumours, sprains, &c.

Off. The Leaves and Berries, and the Fixed Oil of the
Berries.

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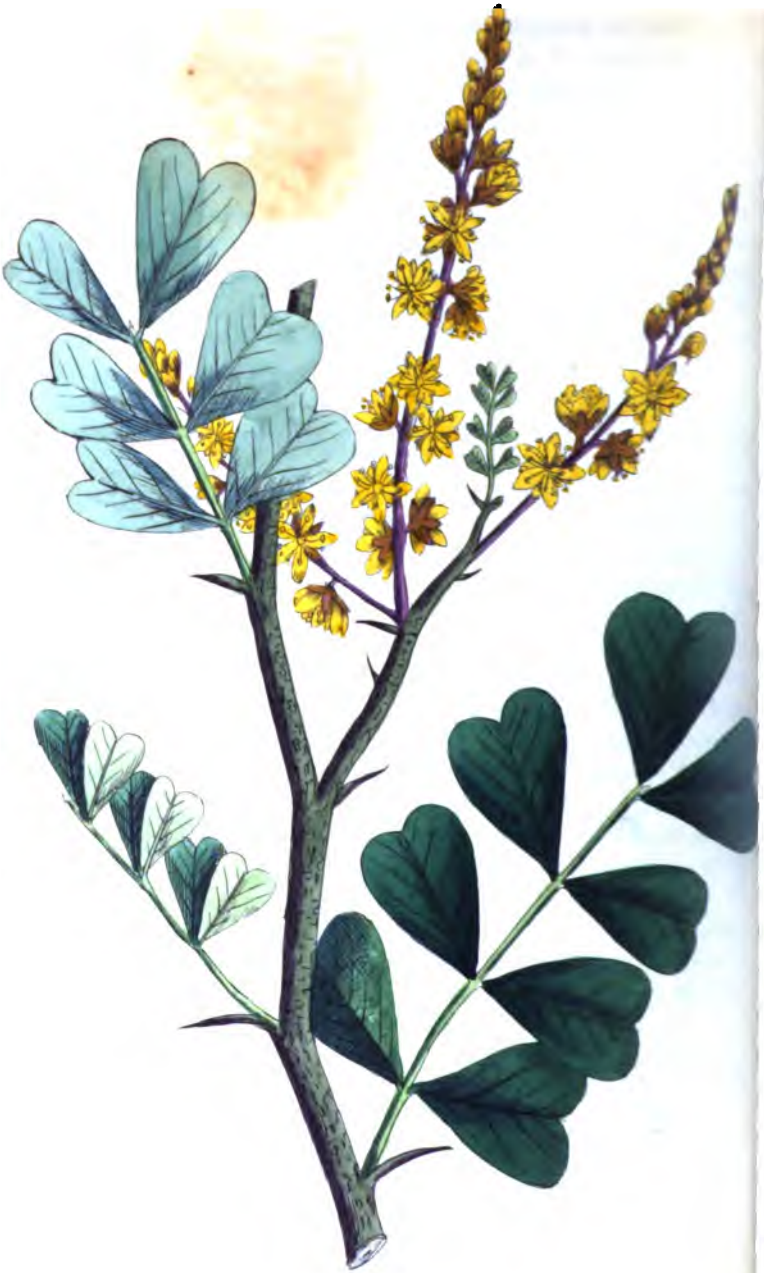
[*] Δαφνη of Dioscorides.

[†] Haller, Bauhin, Geoffroy, Bergius, &c.

[‡] The berries have been thought to act with great energy upon the uterine system; hence the caution given against their use in pregnancy.—*Bergius*, *M. M.* 324.



Hæmatoxylum Campechianum.

ed by G. E. Madeley
ton St. Strand

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HÆMATOXYLUM CAMPECHIANUM.

Logwood Tree.

Class DECANDRIA. *Order* MONOGYNIA.

Nat. Ord. LOMENTACEÆ, *Linn.* LEGUMINOSÆ, *Juss.*

GEN. CHAR. *Calyx* five-parted. *Petals* five. *Capsule* lanceolate, one-celled, two-valved, with the valves boat-shaped.

THIS tree, which is the only species of the genus Hæmatoxylum[*] yet discovered, is a native of South America, and attains to the highest perfection at Campeachy, in the Bay of Honduras, flowering in March and April. In the year 1715, the seeds were introduced into the Island of Jamaica, for the purpose of propagating this tree as an article of commerce, and we are told that from its quick growth, it now abounds in that island; in the neighbourhood of Savannah le Mar it is said to grow so luxuriantly, that in the course of three years it will rise to the height of ten or more feet, and by this rapid growth it soon overruns and destroys the neighbouring plants and shrubs.[†] This tree was first cultivated in this country by Mr. P. Miller, in the year 1739, and for some years subsequently appears to have thriven with great perfection; but in the present day few plants are to be met with in our hot houses.

This tree seldom exceeds twenty or twenty-five feet in height; the trunk and branches are usually extremely crooked, the former does not often measure more than twenty inches in diameter: both trunk and branches are covered with a rough bark of a dark brownish colour; the smaller branches, which are very numerous, are beset with sharp spines; the leaves are abruptly pinnated, and consist of four or five pair of obcordate, obliquely nerved, sessile leaflets; the flowers are produced in terminal spikes or racemes; the calyx is divided into five oblong, obtuse segments, of a brownish purple colour; the corolla consists of five obtusely lanceolate, spreading petals, of a deep yellow colour; the stamens are downy, shorter than the petals, and crowned with smaller oval anthers; the style is about the length of the filament; the germen is obovate, and becomes a large double-valved pod, containing four or five kidney-shaped seeds.

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[*] The specific name, Campechianum, probably originated from Paulo Campechio, the Spaniard who first discovered the plant.—*Ed.*

[†] Long's History of Jamaica.

We are told by Miller,[*] that the seeds which are brought from America, "if fresh, readily grow when sown upon a good hot-bed; and if the plants are kept in a moderate hot-bed, they will grow to be a foot high the same year; and while the plants are young they are generally well furnished with leaves, but afterwards they make but little progress, and are frequently but thinly clothed with leaves. The plants are very tender, so should be constantly kept in the back-stove, where, if they are duly watered, and the stove kept in a good degree of heat, the plants may be preserved very well."

The wood of this tree (the officinal part) is imported into this country chiefly as a dye stuff. It comes to market in logs or junks, about three feet in length, and varying in diameter; these are subsequently cut into slips. The largest logs are preferred, being of a deeper colour.

Sensible and Chemical Qualities, &c. Logwood is inodorous, but has a sweet styptic taste; it is compact, hard and heavy, and of a deep brownish red colour, which it gives both to water and alcohol; the watery infusion instantly strikes black with sulphate of iron. Sulphuric acid dilutes the colour of the watery infusion, and on saturating the acid with salt of tartar, it becomes dark violet, but on dilution soon changes to an aurora colour; nearly the same change takes place if the salt of tartar be added to the infusion itself. The tincture is blood red, which is scarcely altered by sulphuric acid, and on saturating it with salt of tartar it turns rather purplish, and yields a thick sediment, which on adding water is dissolved, and the tincture becomes violet.[†] According to Chevreul, logwood contains tannin, two kinds of colouring matter, (one soluble in alcohol only, the other soluble both in alcohol and boiling water,) volatile oil, acetate of potass and of lime, and a peculiar substance which he has named hematin.[‡] Hematin is obtained by infusing logwood in warm water, filtering the liquid, evaporating to dryness, and digesting the extract in alcohol, sp. gr. 0.837, filtering the tincture, and evaporating off part of the spirit,

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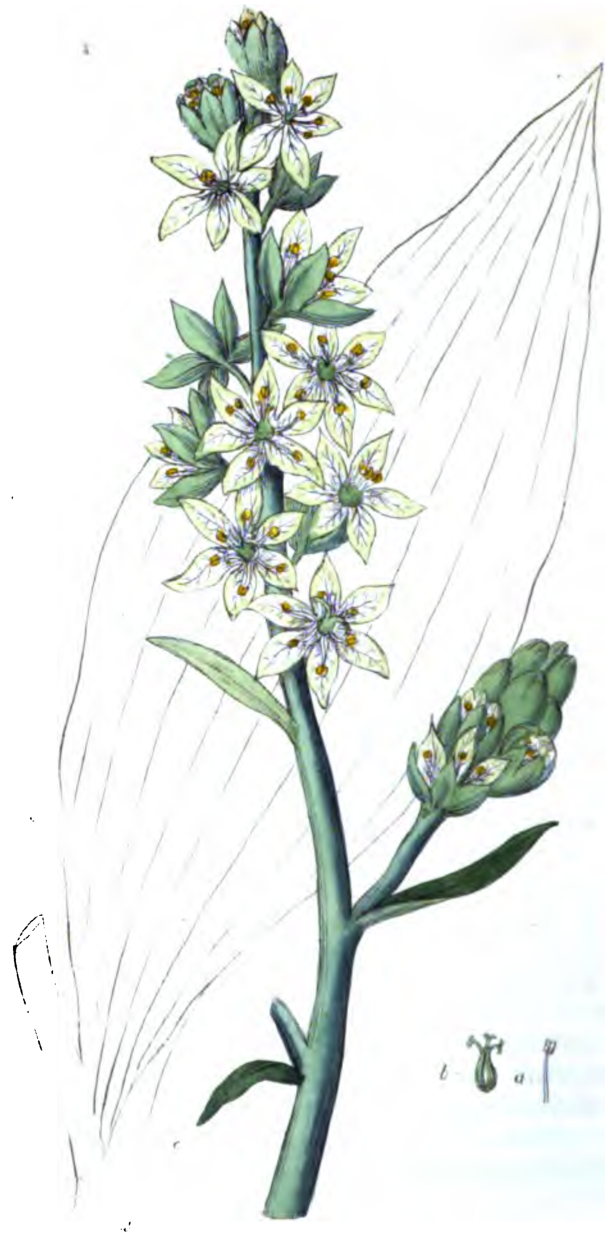
[*] Vide Gard. Dict.

[†] Gray's Elements.

[‡] Annales de Chimie, lxvii. 254.



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Veratrum Album

the colouring matter of the wood (hematin) is deposited abundantly in small brilliant crystals, of a reddish white colour, bitter, acrid, and slightly astringent.

MEDICAL PROPERTIES AND USES. Logwood has been generally considered as an astringent, and as such is medicinally employed in diarrhœas, in which disease it has been found highly efficacious; it has also been given with much benefit in the latter stage of dysentery, to obviate the laxity of the intestines, and give tone to the general system. When taken into the stomach, it is said to tinge the urine and feces red, but from the experiments of Du Hamel and others, it does not, like madder and some other plants, colour the bones of animals. Logwood is generally prescribed in the form of the watery extract,[*] in doses of from ten to thirty grains, dissolved in cinnamon or some other distilled water; the decoction may be given in doses of from one to three ounces several times in the day.

Off. The Wood.
Off. Pp. Extractum Hæmatoxyli, L.

◆

VERATRUM ALBUM.

White Hellebore.[†]

Class POLYGAMIA.—*Order* MONŒCIA.

Nat. Ord. CORONARIÆ, *Linn.* JUNCI, *Juss.*

GEN. CHAR. Hermaphrodite flower. *Calyx* none. *Corolla* six-petalled. *Filaments* six. *Anthers* quadrangular. *Germens* three, erect, oblong, tapering into a style, which is scarcely distinguishable. *Capsules* three, many sided, with one cell and one valve. *Seeds* numerous, oblong, compressed, tunicated.

Male Flowers. *Calyx*, *Corolla*, and *Stamens*, the same as in the hermaphrodite. *Germens* absent.

SPEC. CHAR. *Raceme* terminal, decompound. *Corolla* erect.

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[*] One cwt. of the wood is said to yield 20 lbs. of extract.

[†] *Fig. a.* the germen, style and stigma.

This is a perennial plant, a native of the mountainous regions of Germany, Italy, and Switzerland; and according to Gerarde, was first cultivated in England, about the latter end of the sixteenth century. By many, the Veratrum Album is supposed to be the Ελλεβοϱος λευχος of the Greek writers; an opinion to which Orfila subscribes, but which is founded, like many others respecting the identity of the ancient nomenclature with the modern, rather from the similarity of their effects, than from any agreement in the botanical description.

The root of the white hellebore is about one inch thick, fleshy, fusiform, of a brownish yellow without, white within, and beset with many small fibres; the stalk, which rises to the height of about four feet, is thick, strong, round, upright, hairy; the leaves numerous, very large, oval, entire, lanceolate, plaited; sulcated by numerous and parallel ribs, without footstalks, of a yellowish green colour, and surrounding the stem at its base; the stalk or stem of the plant is terminated by a panniele of greenish white flowers, growing in very large, branched, terminal spikes: some of these flowers are hermaphrodite, and some male. The hermaphrodite flower consists of six petals which are oblong, or lance-shaped, veined, persistent; filaments six, closely surrounding the germen, shorter than the corolla, and terminated by quadrangular anthers: there are three distinct germens in each flower, erect, oblong, ending in short, hairy styles, and changing into oblong capsules, with two valves, and several membranous sheaths, arranged in two rows; the capsule opens into each cell by an interior suture; it contains many oblong, compressed, membranous seeds. The male flowers only differ from the hermaphrodite in the absence of the germens.

Sensible and Chemical Properties. The recent root has a strong unpleasant odour, which is lost by drying; its taste is nauseous, bitterish, and acrid. The dried roots, as found in the shops, have a yellowish grey appearance, somewhat corrugated, and break with a short, starchy fracture, with little or no smell. From the analysis of MM. Pelletier and Caventon, the following are the component parts of white hellebore root: a fatty matter, composed of *elaine, stearine,* and *ammonia, acidulous gallate* of *veratrine,** *a yellow colouring matter, starch, gum,* and *lignin.*†

Deleterious Properties of White Hellebore. Every part of this plant, when recent, is extremely poisonous, and both the leaves and seeds have proved poisonous to different animals.[*] Taken internally, it excites a burning in the mouth and fauces: when powdered and applied to issues or ulcers, it produces griping and purging. Ettmuller says, that this root, when applied to the abdomen, produces a violent vomiting; and Schreder has observed the same phenomenon, when it was used as a suppository. Helmont relates, that a royal prince died in the course of three hours after taking a scruple of this poison; and given in the same dose, it has produced spasms, suffocation, loss of voice, and coldness over the whole body.[†] Several authors affirm that the root of white hellebore dried, powdered, and snuffed up the nose with the intention of producing sneezing, has caused abortions, floodings, which it has been impossible to restrain, hæmorrhages from the nose, suffocation, and sudden death.[‡] Taken internally, it acts with extreme violence as an emetic, and even in small doses has frequently occasioned convulsions, and sometimes death: it seems to act powerfully on the nervous system, producing great anxiety, tremors, vertigo, syncope, loss of voice, &c.[§]

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* This substance will be particularly described hereafter.

† Journ. de Pharm. Aout. 1820.

Upon opening those who have died by the effects of this poison, the stomach discovered marks of inflammation, with corrosions of its interior coat; the lungs have also been found inflamed, and their vessels distended with dark blood.

MEDICAL PROPERTIES AND USES. The ancients, though sufficiently acquainted with the virulence of the white hellebore, were not deterred from employing it internally in several diseases, particularly those of the chronic and obstinate kind, as mania, &c.: they considered it safer when it excited vomiting, and Hippocrates, wished this to be its first effect; in persons of weak constitutions, he considered the use of it unsafe; he has frequently observed it to effect a cure, not only by its immediate action on the primæ viæ, but in cases where no sensible evacuation was promoted by its use.[||] Besides the ancients, we have the testimony of several authors of its efficacy in various chronic diseases.[**] The bark of the root was given by Greding, in a great number of maniacal cases: in some of these it effected cures; in others, it relieved the patients, but without any permanent benefit. In these cases, the root was selected in the spring, and given in powders, beginning with one grain, which was increased according to its effects; eight grains were found to produce vomiting: in some instances it acted, more or less, on the secretions; in some cases the urine was increased, and in others the saliva and mucous discharge. Uterine obstructions of long standing, convulsive complaints, epilepsy, &c. have been removed by the use of it; it has also been found to produce various efflorescences on the body.* Modern practice has almost entirely rejected its internal use, though some have ventured upon so large a dose as a scruple in maniacal cases, and it is said, have experienced good effects from it.

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[*] See Pallas—Russ. Reise. vol. i. p. 49.

[†] Ricat, Histoire des Plantes Vénéneuse de la Suisse.

[‡] Orfila's Toxicology.

[§] Wepfer de Cicut. p. 48.

[||] Hippoc. Περι Ελλεβορισμοῦ in Oper. ed Lind. tom. i. p. 610.

[**] Hannemann, Screta, Wepfer, Linder, &c.

Of Veratrine. MM. Pelletier and Caventou having remarked that almost all the individuals of the family of Veratrum, besides the characteristics described by botanists, possessed a very acrid taste, and exercised a common action over animals, thought it probable that these properties arose from a particular substance common to all these plants; and by a careful analysis of the seeds of the Veratrum Sabadilla, they succeeded in isolating this acrid principle, in which they recognized all the alkaline characters, and to which they gave the name of *Veratrine*. They ultimately discovered the same principle in the Colchicum Autumnale, and the Veratrum Album, the plant under consideration.

M. Magendie gives the following method for preparing Veratrine, as practised by MM. Pelletier and Caventou. "They repeatedly digested the seeds of the plants in boiling alcohol; these tinctures filtrated while almost boiling, deposited, on cooling, whitish flakes of wax: they re-digested the matter which remained dissolved, after evaporating it to the consistence of an extract, in cold water; a small quantity of fatty matter now remained in the filter: the solution was slowly evaporated, when it formed an orange yellow precipitate, which possessed the characteristics of the colouring matter, found in almost all the woody vegetables. On adding a solution of acetate of lead to the liquor, a new and very abundant yellow precipitate was immediately formed, which was separated by means of the filter. The liquor, now nearly colourless, still contained, amongst other substances, the acetate of lead which had been added in excess, and which was separated by a current of hydro-sulphuric acid: the liquor was then filtrated, concentrated by evaporation, treated by magnesia, and again filtrated. The magnesian precipitate was digested in boiling alcohol: the alcoholic liquors yielded on evaporation a pulverulent substance, at first yellowish, but by solutions in alcohol, and subsequent precipitations, caused by pouring water into the alcoholic solutions, it was obtained in the form of a very white and perfectly inodorous powder."* This was the alkaline substance sought for. Veratrine is scarcely soluble in cold water; boiling water dissolves $\frac{1}{1000}$ of its weight, and becomes sensibly acrid: it is very soluble in ether, and still more so in alcohol: it is insoluble in the alkalies, and soluble in all the vegetable acids; it saturates all the acids, forming with them incrystallizable salts, which on evaporation take the appearance of gum: the sulphate alone forms rudiments of crystals when its acid is in excess.† Veratrine restores the blue of turnsol paper, when reddened by acids; exposed to the action of heat it liquefies at 121° Fahr., and assumes the appearance of wax: on cooling it forms an amber-looking mass, of a translucent appearance. Distilled on the naked fire it swells up, becomes decomposed, and produces water, much oil, &c.

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* See Smyth in Medical Communications, vol. i. p. 207.

The taste of Veratrine is very acid, but without bitterness; it excites a copious salivation, however small the quantity may be which is put into the mouth: though absolutely inodorous, it is not advisable to smell too closely at it when in a state of powder, as the smallest quantity carried into the nostrils is often sufficient to produce violent sneezing. Several experiments have been made with the acetate of Veratrine, the only preparation which has been used for this purpose, as being one of the most active: by these it appears that, besides its effects in producing sneezing and salivation, about one grain and a half thrown into the tunica vaginalis, or into the jugular vein, induced tetanus and death in a few seconds.

The effects of Veratrine in a large dose have not been observed on man: a dose of a quarter of a grain (gr. 0.205 troy) rapidly induces very abundant alvine evacuations; if the dose be augmented, more or less violent vomiting is occasioned. M. Magendie says he gave it in the dose of two grains (gr. 1.64 troy) in the twenty-four hours, to an old man who had been struck with apoplexy some time previously, without producing too many alvine evacuations: having tasted the mixture himself, he experienced for several hours an almost insupportable acrid sensation in the mouth and pharynx.

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* Magendie Formulaire.

† Ibid.

M. Magendie says, "Veratrine is particularly applicable in cases where it is necessary to excite quickly a strong action of the bowels. When given with this intention, it has answered very well in the case of old people, where an enormous accumulation of fæces existed in the great intestine."

Off. The Root.
Off. Pp. Decoctum Veratri, L.
Tinctura Veratri, E.
Unguent Veratri, L.

RUBIA TINCTORUM.

Dyer's Madder.[*]

Class TETRANDRIA.—*Order* MONOGYNIA.

Nat. Ord. STELLATÆ, *Linn.* RUBIACEÆ, *Juss.*

GEN. CHAR. *Corolla* of one petal, bell-shaped. *Berries* two, one-seeded.

SPEC. CHAR, *Leaves* annual. *Stem* covered with short prickly points.

THIS species of Rubia is the Ερευθοδανον of Dioscorides. It is a perennial plant, a native of the South of Europe, the Levant, and Africa, flowering in June. It was first cultivated in this country by Gerarde, since which period its cultivation has become an object of national importance, from the immense consumption of the roots as a dye-stuff, by the calico printers and dyers.

The root of this plant is long, round, jointed, composed of succulent fibres, from which proceed numerous small thready side roots, which extend a considerable distance under the ground, and throw up many shoots, from which the plant may be propagated; the stems are procumbent, quadrangular, jointed, four or five feet in

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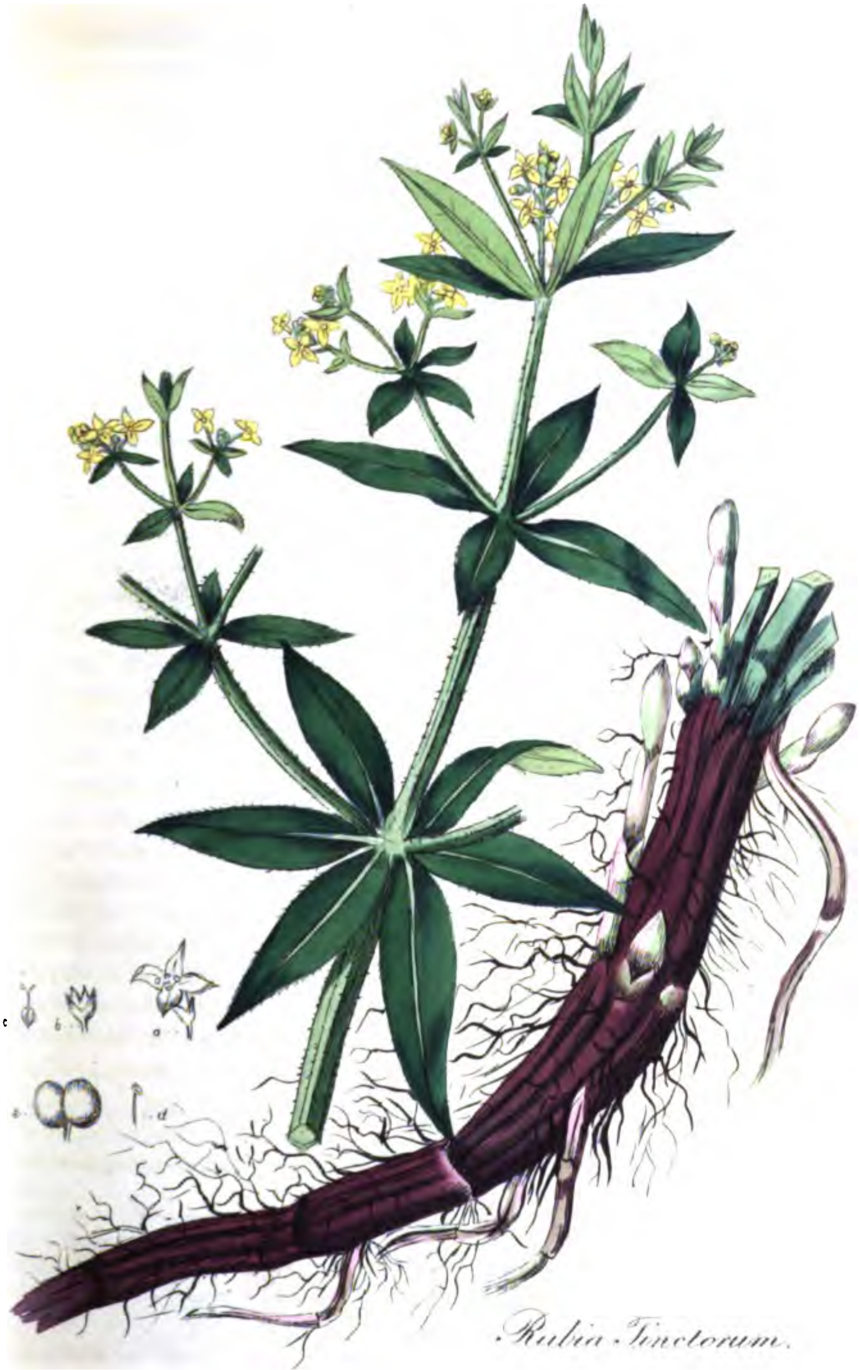
[‡] Fig. *a.* the flower magnified. *b.* The calyx. *c.* The pistillum. *d.* The anther. *e.* The fruit.



Rubia Tinctorum.

Printed by G. E. Madeley

length, and covered with short hooked points, by which they adhere to the neighbouring plants for support, and subdivide into numerous braches, proceeding from the articulations; the leaves are placed in whorls, from four to six together, elliptical, pointed, rough, ciliated, and arise from the joints of the stems and branches; the flowers are small and terminal; the calyx is divided into four teeth; the corolla is of a straw or yellow colour, campanulate, and cut at the brim into four ovate segments; the four filaments are short, and support simple erect anthers; the germen is inferior, double, supporting a slender style, dividing at the top into two globular stigmata; the germen becomes two round black berries, each containing an ovate seed.

Many attempts have been made to raise this plant in Britain, and considerable encouragement has been held out to the cultivators;* but the low price and excellent quality of the Dutch madder,† is a bar to its successful cultivation in this country, although the roots grown here have been found equal, if not better, than any of foreign growth.

The roots of madder are usually dug up for use, the third or fourth summer of its growth; it is then gradually dried in a stove of a peculiar construction, to remove the cuticle, which is done by thrashing; after which it is more perfectly dried in a kiln, pounded and packed in barrels for sale. Previous to packing the powder is sorted, usually into three different qualities, which fetches a price according to its quality.‡

Sensible and Chemical Properties, &c. The roots of madder have a bitter and somewhat austere taste; the odour is not strong, but rather unpleasant; the infusion made with boiling water is of a deep reddish brown; to cold water, alcohol, and the essential oils, the roots impart a bright red colour. Both the taste and odour of madder is imparted to the watery and alcoholic infusions. The colouring matter of madder is precipitated of a brownish red, by a solution of alum; of a deep lake or blood red colour, by lime water and the alkaline carbonates; and brown, by acetate of lead.§

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* Vide Trans. of the Society for the Encouragement of Arts, &c.

† The chief part of the madder used by the dyers in Britain is grown by the Dutch; the best comes from Zealand, and it is said our merchants pay £200,000. annually for this drug.

‡ Those who are particularly interested in the growth of madder, we refer to Miller's Gard. Dict., where a full account is given of the cultivation, and subsequent management of this plant.

§ Annales de Chimie, tom. iv. 104.

The colouring matter of madder roots appear to differ from most other substances used for the purpose of dyeing, in having the peculiar property of tinging with a red colour the milk, urine and bones of those animals which have fed upon it; a circumstance which was first noticed by Antoninus Mizaldus, and subsequently by Mr. Belchier, who published an account of a pig and a cock, whose bones became red by eating madder mixed with their food;[*] since which time (from various experiments that have been made) it has been ascertained, that the colouring matter of madder affects the bones in a very short time, and that the most solid part of the bones first receives the red colour, which gradually extends through the whole osseous substance.

Medical Properties and Uses. Madder has been long regarded as a deobstruent, detergent, and diuretic, and more latterly as an emmenagogue.[†] It has been chiefly used in jaundice, dropsy, and diseases proceeding from visceral obstructions, particularly those of the liver and kidneys; but its efficacy in any disease scarcely warrants the encomiums that were formerly bestowed upon it. Its diuretic effects do not appear to be constant, and as an emmenagogue, its powers are neither uniform nor powerful. The roots of madder, when powdered, may be given in substance, in doses of from twenty to thirty grains three or four times a day; or in decoction, two ounces to a pint and half of water, of which from one to three ounces may be taken three times a day.

Off. The Roots.

◆

STYRAX BENZOIN.

Benzoin Storax, or Benjamin Tree.[‡]

Class Decandria.—*Order* Monogynia.

Nat. Ord. Bicornes, *Linn.* Guaiacinæ, *Juss.*

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[*] Phil. Trans. vol. xxxix. pp. 287—299.

[†] Vide Home's Clinical Exp. p. 388.

[‡] Fig. *a.* represents the corolla spread open. *b.* The germen and style. *c.* The anthers. *d.* The calyx.

GEN. CHAR. *Calyx* inferior. *Corolla* funnel-shaped. *Drupe* two-seeded.

SPEC. CHAR. *Leaves* ovate, pointed, entire. *Flowers* racemes, compound.

THIS species of Styrax is a native of Sumatra, flowering in July. It is a tree of quick growth, and rises to a considerable height, sending off numerous branches; the trunk and branches are round, and covered with a whitish downy bark; the leaves stand upon short foot-stalks, and are placed alternately on the branches: in form they are ovate, pointed, from two to four inches long, and from one to two broad, entire, veined: on the upper surface smooth, and of a bright green: on the under side downy; the flowers are produced in clusters, stand upon short slender peduncles, mostly hang all on one side, and arise from the axilla of the leaves; the calyx is bell-shaped, downy, and divided at the brim into five obscure segments or teeth; the corolla is composed of five linear obtuse petals, four times longer than the calyx, and connected together at the base: externally cineritious and somewhat downy; the ten filaments are the length of the calyx, connected together at the base into a tube, and crowned with linear erect anthers; the germen is ovate, downy, and placed above the insertion of the corolla; style filiform, longer than the stamens, and crowned with a simple stigma; the fruit is a simple drupe of an ovate form, containing two angular nuts.

Although the tree which produces the resinous substance known under the name of benzoin, or gum benjamin, was known to Garcias ab Horto, Grimm, Sylvius, and subsequent botanists, yet its botanical character was entirely mistaken* till about the year 1787, when Mr. Dryander, at the request of the late Sir Joseph Banks, undertook to investigate the subject; for this purpose, proper specimens (from the tree which produces the benzoin,) were obtained from Mr. Marsden at Sumatra, when Mr. Dryander satisfactorily ascertained it to be a Styrax.

This tree, which grows abundantly in some parts of the northern coast of Sumatra, when arrived at the age of six or seven years (or

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[*] Mr. Ray had erroneously supposed it to be a species of Laurus, a native of Virginia, and Linnæus in his Mantissa Plantarum, describes it under the name of Croton Benzoë, and afterwards in the Supplementum Plantarum under the name of Terminalis Benzoin.

when the trunk acquires about seven or eight inches in diameter,) begins to afford the benzoin; the bark is then cut through longitudinally, or somewhat obliquely, at the origin of the principal lower branches, from which the balsam exudes in a liquid state, which by exposure to the sun and air soon concretes, and when sufficiently hard it is scraped from off the bark with a knife or other instrument. These incisions are annually repeated for ten or twelve years, after which period the tree becomes *nearly* exhausted, and the balsam which it affords less pure. The benzoin which issues first from the wounded bark is the purest, being soft, white, and extremely fragrant; that which is of a brownish colour and very hard, is less esteemed. The benzoin of commerce is distinguished into different kinds according to their purity, the purest of which is denominated white benjamin, and the most impure and dark coloured, black benjamin. The benzoin of the shops is in large brittle masses, composed of variously coloured pieces, and that which contains most white and light coloured masses is accounted the best.

SENSIBLE AND CHEMICAL QUALITIES, &c. Gum Benjamin* has a very fragrant and pleasant odour, but scarcely any taste; when chewed it breaks down in the mouth, tasting resinous, and rather sweet; it does not adhere to the fingers; when heated it soon melts, froths, and gives out a balsamic, pleasant fume, which catches fire from a candle, and burns with a vivid, smoking flame, leaving a brittle, shining charcoal.

Distilled by itself it yields about 9 per cent. of crystallized benzoic acid, which, when procured in this manner, is called flowers of benjamin; 5.5 of acidulous phlegm; 60 of a butter-like burnt oil; 22 of charcoal, and 3.5 of carburetted hydrogen gas, mixed with carbonic acid gas.† Water extracts part of its benzoic acid, if distilled together no essential oil comes over. Spirit of wine dissolves it; the tincture is rendered turbid and white by water; it also readily dissolves in æther.

The benzoic acid is also separated by grinding sixteen ounces of gum benjamin with four of lime; then boiling the mixture, first in a gallon of water, and then in half a gallon; mixing the strained liquors, evaporating to one half, and dropping in about four ounces of spirit of salt, until no more precipitate falls down; the liquor being poured off, the precipitated benzoic acid is dried, and afterwards sublimed, by a gentle heat, into flowers. In this process, the lime uniting with the benzoic acid forms a benzoate of lime; this is decomposed by the muriatic acid uniting with the lime and setting the benzoic acid free; which requiring two hundred times its weight of water to dissolve it, falls down as a precipitate. Benzoic acid[*] has a peculiar aromatic smell, and a sweet, hot, and bitter taste., This acid is not altered by exposure to the air. Two hundred parts of cold water dissolve one part of it; but one part of it dissolves in 24½ parts of boiling water."

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* More properly *benjavis*, the Sanskreet or classical Indian name being *benjui*.

† According to Mr. Brande's analysis, Nicholson's Journ. vol. x. p. 86.

MEDICAL PROPERTIES AND USES. Benzoin was formerly regarded as an expectorant, and as such was esteemed as a medicine of much efficacy in asthma and other pulmonary affections. It is, however, almost discarded by modern practitioners, but we are told that the Hindoo physicians, and particularly the Tamool practitioners, prescribe it internally in doses of from four to fifteen grains, in consumption and asthma; and that the less valuable sort is burnt by the Malays and Arabs to perfume their temples and houses.[†] The following formula for preparing fumigating pastilles we presume may not be uninteresting to our readers: Take of gum benjamin, one drachm; cascarilla bark, half a drachm, (powdered); gum myrrh, in powder, twenty grains; oil of nutmeg and oil of cloves, of each, ten drops; nitrate of potash, half a drachm; powdered charcoal, six drachms; mucilage of gum tragacanth, as much as may be required to cause the mass to adhere; when it may be divided into pieces of a convenient size for burning. Benzoin is chiefly used in this country for preparing the acid or flowers of benjamin, It also forms one of the ingredients in the following patent or quack medicines, viz. Pectoral Balsam of Honey; Jesuits' Drops, or Friars' Balsam; Essence of Coltsfoot; Virgin's Milk, and Riga Balsam.

Off. The Balsam, or Gum Resin.
Off. Pp. Acidum Benzoinum, L. E. D.
Tinctura Benzoini Composita, L. E. D.

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[*] Benzoic acid has been found in urine, particularly when there is a deficiency of phosphoric acid in it. According to Vauquelin and Fourcroy it always exists in the urine of graminiverous animals: this, however, has been denied by M. Giese. When it does exist in the animal kingdom it is usually in combination with lime or potash.

[†] Ainslie's Mat. Med. vol. i. p. 34.

ARCTIUM LAPPA.

*Burdock.**

Class SYNGENESIA.—*Order* POLYGAMIA ÆQUALIS.

Nat. Ord. COMPOSITÆ CAPITATÆ, *Linn.*
CINAROCEPHALÆ, *Juss.*

GEN. CHAR. *Receptacle* chaffy. *Calyx* globular; the scales at the apex with inverted hooks. *Seed-down* bristly, chaffy.

SPEC. CHAR. *Leaves* cordate, unarmed, petioled.

THIS species of burdock is a biennial plant, flowering in July and August; it is indigenous to Britain, and is common on waste grounds and on road sides in most parts of the country.

The root is long, spindle-shaped, simple, externally of a dark brown colour, internally white; the stalk is erect, succulent, grooved, villous, of a purplish colour, branched, and rises to the height of three or four feet; the leaves are alternate, cordate, undulated, veiny, of a dark green colour above and whitish underneath, and supported on long, grooved foot-stalks: the lower leaves are very large, often exceeding twelve or eighteen inches in length; the flowers are in terminal panicles; the calyx is common to all the florets, globular, composed of imbricated scales with hooked extremities, by which they adhere to clothes† and the fur of animals; the corolla is compound, of a purple colour;‡ the florets are all fertile, tubular, and divided at the limb into five pointed segments; the stamens are five, white, and filiform; the anthers are of a blue colour, and are united into a tube which projects beyond the corolla; the germen is somewhat triangular, supporting a slender style, longer than the stamens, and crowned with a bifid stigma; the receptacle is punctured; the seeds are oblong, quadrangular, of a brown colour, and covered with a prickly down.

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* Fig. *a.* the style and stigma. *b.* A floret magnified. *c.* A scale of the calyx. *d.* The anthers.

† From this circumstance the specific name *Lappa* is supposed to be derived. Lappa dici potest vel *απο τȣ λαβων* prehendere vel *λαπτυν* lambere.—Raii Hist. p. 332.

‡ There is a variety with white flowers, but which is by no means common.—*Ed.*

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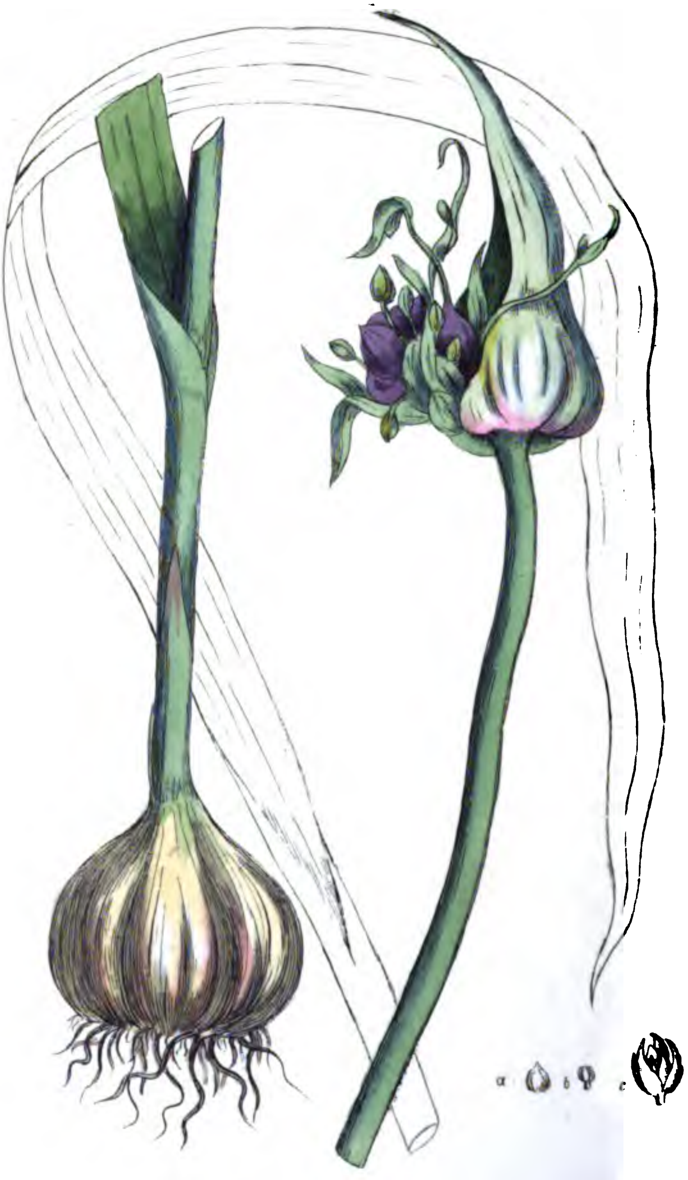

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Allium Sativum.

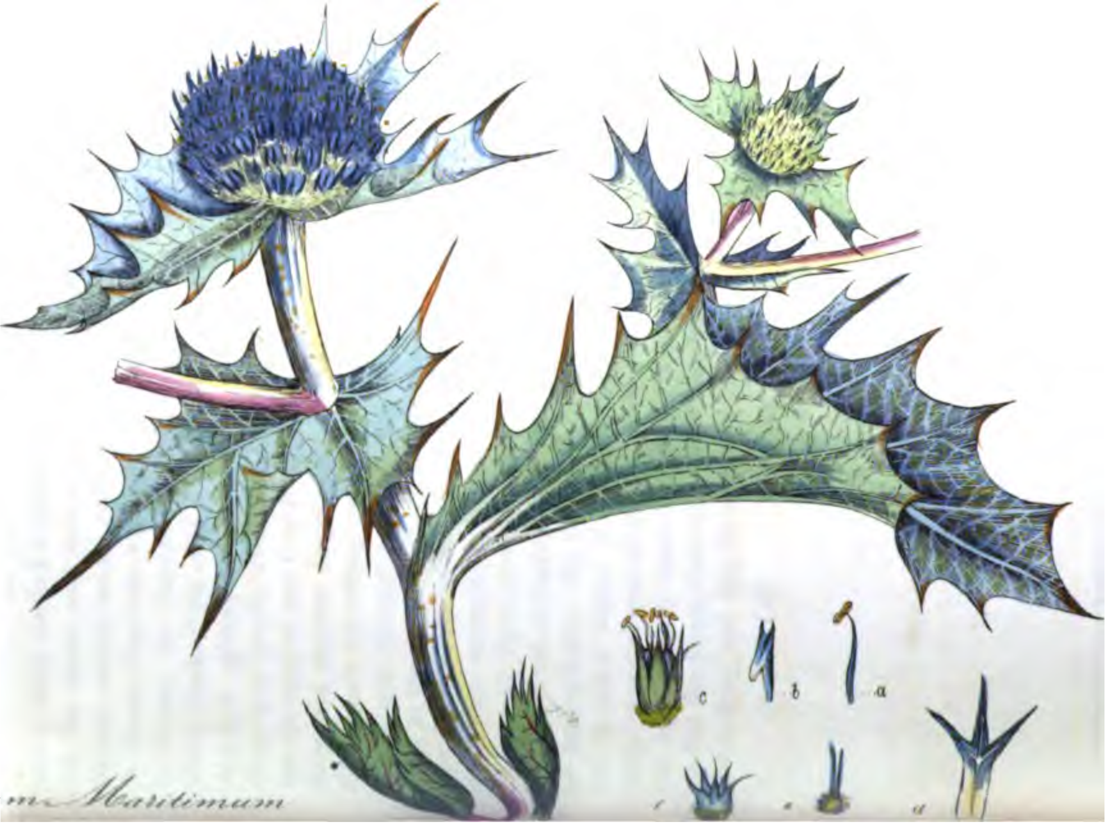
[illegible]

[illegible] plant and [illegible] the drawing was taken [illegible] on the [illegible]

[illegible] A [illegible] floret [illegible]

[illegible] pistillum [illegible]

[illegible] Dioscorides, lib. [illegible]



Eryngium Maritimum

This species of Allium is the Κρόμυον of Dioscorides, its specific appellation is derived from *caput*, a head, on account of the form of its bulb; the native country of this plant is not known, nor the precise period of its introduction into Europe, over most parts of which it has been long cultivated as an article of food. The botanical character of this plant is so well known as scarcely to require description. The bulb is globose, simple, formed of concentric scales, with fibrous roots issuing from the base; the stem is a naked swelling scape, rising to the height of two or three feet; the leaves are fistular, spreading, pointed and sheathing at the base; the flowers are produced in a close head or capital, inclosed in a deciduous spathe; it blossoms in June and July. Several varieties of the onion are cultivated in our gardens, but as they are never used medicinally we judge it quite unnecessary to enumerate them.

Sensible and Chemical Properties, &c. of Garlic, &c. Every part of this plant has an offensive and pungent odour, this odour is so powerfully diffusive and penetrating, that it impregnates the whole system on the root being taken into the stomach, and even when applied to the soles of the feet its odour may be perceived in the breath, perspiration and urine. To the taste the roots are pungent and acrimonious. These latter properties chiefly depend upon an essential oil, which may be obtained by distillation with water; this oil is of a thick ropy consistence, of a yellowish colour, heavier than water, and possessing the active properties of the garlic in a concentrated degree; when applied to the skin it produces great irritation and subsequently blisters; it strikes a black colour when triturated with oxide of iron. The acrid principle may also be obtained by expression; the expressed juice is of a thick consistence and slightly reddens the infusion of turnsol and other vegetable blues. Alcohol, water, and acetic acid also extract the acrid principle of garlic; with the former menstrua a reddish yellow tincture is obtained, which leaves, when evaporated, a brown acrid extract, that imbibes moisture from the air. By simple coction with water, garlic is rendered mild and inert. On drying it loses nearly two thirds of its weight, without suffering any considerable loss of its taste or smell.

The sensible and chemical properties of the common onion, as well as the leek, resembles those of the garlic, but in a less powerful degree; their active qualities like the garlic depending upon an essential oil, a small quantity of which may be obtained by distillation. The distilled oil from the onion is combined with sulphur which occasions the disagreeable odour of the onion when putrifying. According to Vauquelin, the recent juice contains sugar, mucus, phosphoric acid, phosphate of lime, and citrate of lime. The odour and taste both of the leek and onion are dissipated by much boiling, and they become bland and insipid.

MEDICAL PROPERTIES AND USES OF GARLIC. The medicinal uses of garlic are various; it has been long considered to possess expectorant, diuretic, stimulant, diaphoretic and anthelmintic properties, and its utility in various diseases is attested by ancient and modern writers of unquestionable authorities. It has been much esteemed as an efficacious remedy in chronic catarrh, pituitous asthma, and in inveterate coughs, in which complaint Celsus employed it mixed with honey. Its diuretic effects in dropsy are very considerable, and also its lithontriptic power in removing urinary calculi, when persevered in for some length of time. It acts powerfully by diaphoresis, if the body be kept warm during its use. It has been successfully given in intermittents,[*] and in fevers of the typhoid type. Garlic has been long a popular remedy for expelling worms, and instances are recorded by Rosenstein,[†] Taube, Hoffmann, and others, of its destroying and expelling tenia. Externally it is applied in the form of poultice, to promote suppuration in indolent tumours. Bruised, it is often applied to the soles of the feet, to promote revulsion in the coma of typhus and in confluent small-pox. A clove of garlic, or a few drops of the expressed juice introduced into the external ear not only relieves pain in the part, but it is also said to be an efficacious remedy in atonic deafness. In retention of urine produced by a want of action in the bladder, a poultice of garlic applied to the pubis, has had the effect of stimulating the bladder to discharge its contents; an enema formed of the expressed juice, diluted, has been injected into the rectum to destroy ascarides.

Garlic when taken in considerable doses, or used too freely as a condiment, is capable of producing inflammation of the abdominal viscera, and of exciting discharges of blood from the hæmorrhoidal vessels; it is also apt to occasion head-ache, drowsiness, flatulence, and great thirst in some constitutions.

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[*] Vide Celsus, lib. c. p. 142. Bergius Mat. Med. p. 255.

[†] Rosenstein recommends the garlic to be boiled in milk, a pint of which is to be taken night and morning.

Garlic may be taken in substance, from one to five or six cloves for a dose, or in powder, in doses of from ten to thirty grains; the expressed juice may be taken to the quantity of one drachm, mixed with syrup, milk, or any other proper liquid.

Off. Pp. Syrupus Allii, D.

MEDICAL PROPERTIES AND USES OF THE LEEK AND ONION. The properties of the leek and onion so nearly resemble those of the garlic that it would be a repetition to particularize either their properties or the diseases in which they have proved efficacious. Suffice it to say, that they may be used with advantage in most cases in which garlic would prove efficacious, but as their sensible qualities are less powerful than garlic, so their efficacy as medicines is proportionally weaker. Neither the onion nor the leek is often prescribed in present practice; as articles of food they are much used, and when taken in moderation prove wholesome and nutritious, but when eaten to excess they are apt, like garlic, to excite thirst, head-ache, and flatulence.

ERYNGIUM MARITIMUM.

Sea Eryngo, or Holly.[*]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ.

GEN. CHAR. *Flowers* capitate. *Receptacle* paleaceous.

SPEC. CHAR. *Radical Leaves* obovate or reniform, plaited, spinous. *Head* peduncled.

THE ERYNGIUM[†] MARITIMUM is a perennial plant, indigenous on the sea shores of Britain, flowering in July and August; the specimen from which our drawing was taken, grew on the sandy shore

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[*] Fig. *a*. a stamen, magnified. *b*. A petal. *c*. A single floret, a little magnified. *d*. A palea, magnified. *e*. The pistillum. *f*. The calyx.

[†] Eryngo is generally supposed to be the *ηρυγγιον* of Dioscorides, lib. iii. c. 24.

between Romney and Dungeness, where this plant grows in great abundance and very luxuriantly.

The root is long and creeping; the stem rises tó the height of from one to two feet, erect, branching, round, obscurely furrowed and leafy; the lower leaves are reniform, lobed, plaited, and stand upon footstalks; the leaves on the stem are sessile; the whole are smooth, rigid, toothed with sharp spines, of a pale glaucous colour, with the spines and nerves white; the flowers are produced in terminal, conical heads, and supplied with paleæ, which separate the florets, they are bicuspid, spinous, and somewhat longer than the florets; the involucre is composed of many spreading acute pointed leaves; the calyx is divided at the brim into five segments, which are spinous and stand erect; the corolla consists of five oblong blue petals with inflected points; the filaments are longer than the corolla, and furnished with oblong anthers; the styles are filiform and support simple stigmas; the germen is inferior, hairy, and becomes two oblong connected seeds.

SENSIBLE QUALITIES, &c. The root of eryngo has no peculiar odour, to the taste it manifests a pleasant sweetness, and on being chewed for some time imparts a slight aromatic pungency; these qualities are extracted by water.

MEDICAL PROPERTIES AND USES. The remedial virtues of Eryngo are not very powerful, it is supposed to be diuretic, aperient, and antiscorbutic. By Boerhaave it was esteemed one of the principal aperient roots; it has also been recommended in visceral obstructions and gonorrhœa, but it has now fallen into disuse. The roots are frequently candied, and form a pleasant sweetmeat: we are told that the young flowering shoots have the flavour of asparagus when boiled,* and may be eaten as a pot-herb ad libitum.

Off. The Root.

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* Linn. Flor. Suec.

PIPER NIGRUM.

Black Pepper.[*]

Class DIANDRIA.—*Order* TRIGYNIA.

Nat. Ord. PIPERITÆ, *Linn.* URTICÆ, *Juss.*

GEN. CHAR. *Calyx* none. *Corolla* none. *Berry* one-seeded.

SPEC. CHAR. *Leaves* ovate, seven-nerved, smooth. *Petioles* simple.

THIS species of pepper[†] is a native of the East Indies, growing spontaneously in many parts of that vast territory; but as an article of commerce it is extensively cultivated in the islands of Java and Sumatra, from whence the whole of Europe is supplied. At Sumatra, the ground chosen for a pepper garden is marked out into regular squares of six feet, the distance at which the chinkareens, or props, are placed, which are cuttings of the Morinda Citrifolia, or of an Erythrina. Two pepper vines[‡] are usually planted to each chinkareen, round which the vines twist for support. The plants are three years old before they begin to bear, by which time they arrive to the height of eight or twelve feet, and continue to bear for eight years. The plants yield two crops yearly, the first in December, the second in July.[§] The fruit, which is produced in long spikes, is four or five months in coming to maturity; the berries are at first green, turning to a bright red as they become ripe, and soon fall off, if not gathered. As the whole cluster does not ripen at the same time, part of the business of the grower is to pluck the bunches as soon as any of the berries ripen, and spread them upon mats to dry, when they become black, and more or less shrivelled, according

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[*] Fig. *a.* the corolla spread open. *b.* A section of a ripe berry. c. The germen.

[†] Πεπερι, Dioscoridis.

[‡] The vines are propogated by cuttings or suckers.

[§] One thousand plants yield from 500 to 1000 lbs. of pepper.

to their degree of maturity; they are then trodden to separate the fruit from the stalk[*]

The root of this plant is perennial; the stems are climbing, slender, round, smooth, jointed, swelling towards each joint, branched, and from eight to twelve feet in length; the leaves are ovate, entire, smooth, seven-nerved, of a dark green colour, and stand at the joints of the branches upon sheathing petioles; the flowers are diœcious, and produced in terminal spikes; there is no regular calyx nor corolla; the filaments are two, sometimes wanting, small, flat, awl-shaped; the two anthers are roundish, and placed opposite, at the base of the germen which is ovate, and support three rough stigmata; the fruit is a globular berry, containing one round seed.

SENSIBLE AND CHEMICAL PROPERTIES. Black pepper is hot and pungent to the taste, and its smell slightly aromatic. The principle on which its pungency depends is soluble both in alcohol and water. The watery infusion is brown, and reddens vegetable blues. The decoction forms a precipitate with infusion of galls, which is redissolved if the fluid be heated to 120°. By distilling the alcoholic infusion, a portion of green volatile oil is obtained, having the whole flavour and pungency of the pepper. Ether digested upon powdered pepper takes up three parts in ten: this ethereal tincture, when evaporated upon water, leaves an intensely pungent, oily resin, of a yellowish colour, with the odour of the pepper, and some insipid extractive matter.

M. Pelletier has ascertained that the fatty oil obtained by distilling the alcoholic tincture of pepper, when washed in warm water, and redissolved in hot alcohol, deposits, after a few days, small crystals, which when purified, are insipid to the taste, and have the peculiar property of imparting a blood red colour to strong sulphuric acid. This substance M. Pelletier has named Piperin:[†] to this, pepper chiefly owes it pungency. M. Pelletier also found the following components in pepper: malic and tartaric acids, starch, lignin, earthy and alkaline salts, a coloured gummy matter, extractive, and a volatile balsamic oil.

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[*] White pepper is the ripe and perfect berries stripped of their outer coat, by steeping in a preparation composed of lime water and oil, called Chinam; in about fourteen days the outer coverings burst, and are easily separated, after which the pepper is dried by exposure to the sun. Pepper which has fallen to the ground, from becoming over ripe before it is gathered, loses its outer coat: this is sold as an inferior kind of white pepper.

[†] Pure Piperin may be obtained, according to Dr. Meli, (Ann. Univ. di Med. tom. xxvii.) by digesting one pound of black pepper, powdered, in one pint and a half of alcohol at 36°, in a gentle heat. Then raise it to ebullition, after which leave it to cool, then pour off the fluid, and repeat the operation with a fresh quantity of alcohol; mix the tinctures, and add one ounce and a half of hydrochloric acid, and one pint of dis-

The ground pepper of the shops is generally adulterated with the powdered husk of the white mustard seed, which is sold by the mustard manufacturer for this purpose under the name of P.D. pepper dust.

Medical Properties and Uses. Black pepper is aromatic, stimulant, and carminative. It has been successfully employed as a stimulant in paralytic affections and retrocedent gout, and has proved serviceable in some cases of vertigo, and in arthritic disorders. It is also found to check nausea, vomiting, and hiccough, and when taken in large doses, has been found to stop the paroxysm of intermittents.* It is said to be injurious in inflammatory habits, and to those subject to piles; it nevertheless forms the principal ingredient in a celebrated patent medicine (Ward's Paste) for the cure of piles, and which has without doubt proved efficacious in some instances. As a local application it is usefully employed in the form of infusion, as a gargle in relaxation of the uvula. Pepper is in general use as a condiment, and when taken in moderate quantity promotes digestion. Black pepper may be taken in doses of from ten to twenty grains.

Off. The Berry.
Off. Pp. Emplastrum Meloes Vesicat. Comp. E.
Unguentum Piperis Nigri, D.

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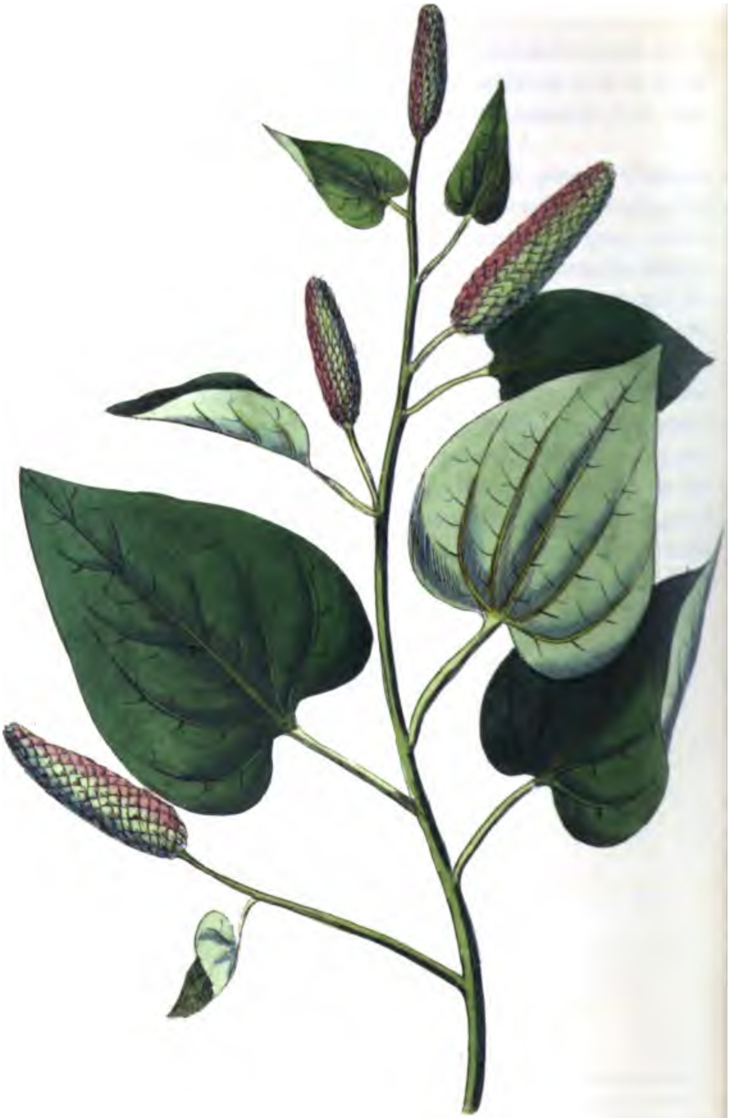
tilled water, a fatty precipitate falls down, which should be separated by filtration. The crystals which form on the sides of the vessels and the filter are pure *Piperin*.

* Dr. Méli has successfully employed Piperin in intermittent and other fevers, and it is said to be equally efficacious as the preparations of Quina.



Piper Longum.

G. Spratt del et lith. [illegible]

[illegible]

[illegible]

[illegible] the fruit [illegible] India, the [illegible] teeth, which [illegible]

[illegible] of long [illegible] is [illegible] it is the [illegible] it changes [illegible] long.

[illegible] AND CHEMICAL [illegible] of a dark [illegible] week and [illegible] the [illegible] parts [illegible] proper [illegible]

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PIPER LONGUM.

Long Pepper.

For Class, Order, Nat. Ord. and Gen. Char.
see Piper Nigrum.

Spec. Char. *Leaves* cordate, petioled, sessile.

This species of Piper is a native of the East Indies, and particularly abundant in the countries of Malabar, Java, Bengal, and also of Nepaul.* The root is perennial; the stems do not rise to any considerable height, they are scandent, shrubby, much branched, round, smooth, and slender; the leaves are commonly cordate, (but vary much in size and often in form) pointed, entire, nerved, smooth, of a deep green colour, and are placed alternately on the stems upon footstalks; the flowers, which are very small, are produced in terminal spikes which are nearly cylindrical, the parts of inflorescence, though less distinct, resemble those of the Piper Nigrum already described; the fruit consists of very small one-seeded pulpy berries, which are green in their immature state, becoming red when ripe.

In lower India there is a large variety of this species of pepper sometimes met with, which we are told by Dr. Ainslie is called in Tamool *Ana Tipilie*, or elephant pepper.

The fruit of long pepper is said to be most pungent in its immature state, it is therefore gathered while green, and dried by the heat of the sun, when it changes to a blackish or dark grey colour, the spikes are gathered entire, and are usually about one inch and a half long.

Sensible and Chemical Properties, &c. Long pepper as imported, is of a dark greyish colour, its taste is intensely hot and pungent, but its odour weak and slightly aromatic. According to recent analysis the component parts are extractive, starch, a coloured gummy matter, Piperin, (a concrete fatty matter, in which the pungency of the pepper resides) some saline substances, and a large proportion of bassorine. The ethereal tincture, when evaporated on water, affords a resin less pungent than that of black pepper, but more permanent, in other respects the constituents of long pepper are similar to those of the black.

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* Kirkpatrick's Account of Nepaul, p. 205.

The medicinal virtues of long pepper correspond with those of white pepper, hence it may be used under the same circumstance, and in similar doses. We are told that the Vytians on the coast of Coromandel prescribe it in the form of infusion, mixed with a little honey, in catarrhal affections, to relieve the chest when loaded with phlegm; that the root is a favorite medicine of the Hindoos,* that it possesses the virtues of the berry but in a weaker degree, and is prescribed by them in cases of palsy, tetanus, and apoplexy. Long pepper forms one of the ingredients in the compound tincture of cinnamon of the London and Dublin Pharmacopœias.

Off. The Fruit.

◆

LAURUS SASSAFRAS.

Sassafras Laurel.†

Class Enneandria.—*Order* Monogynia.

Nat. Ord. Oleraceæ, *Linn.* Lauri, *Juss.*

Gen. Char. *Calyx* none. *Corolla* calycine, six-parted. *Nectary* of three two-bristled glands, surrounding the germen. *Interior Filaments* glanduliferous. *Drupe* one-seeded.

Spec. Char. *Leaves* ovate, entire, two or three-lobed.

This species of laurel is a native of North America, and is found in every latitude from New England to Florida, it was first cultivated in Britain about the year 1633, and is now to be met

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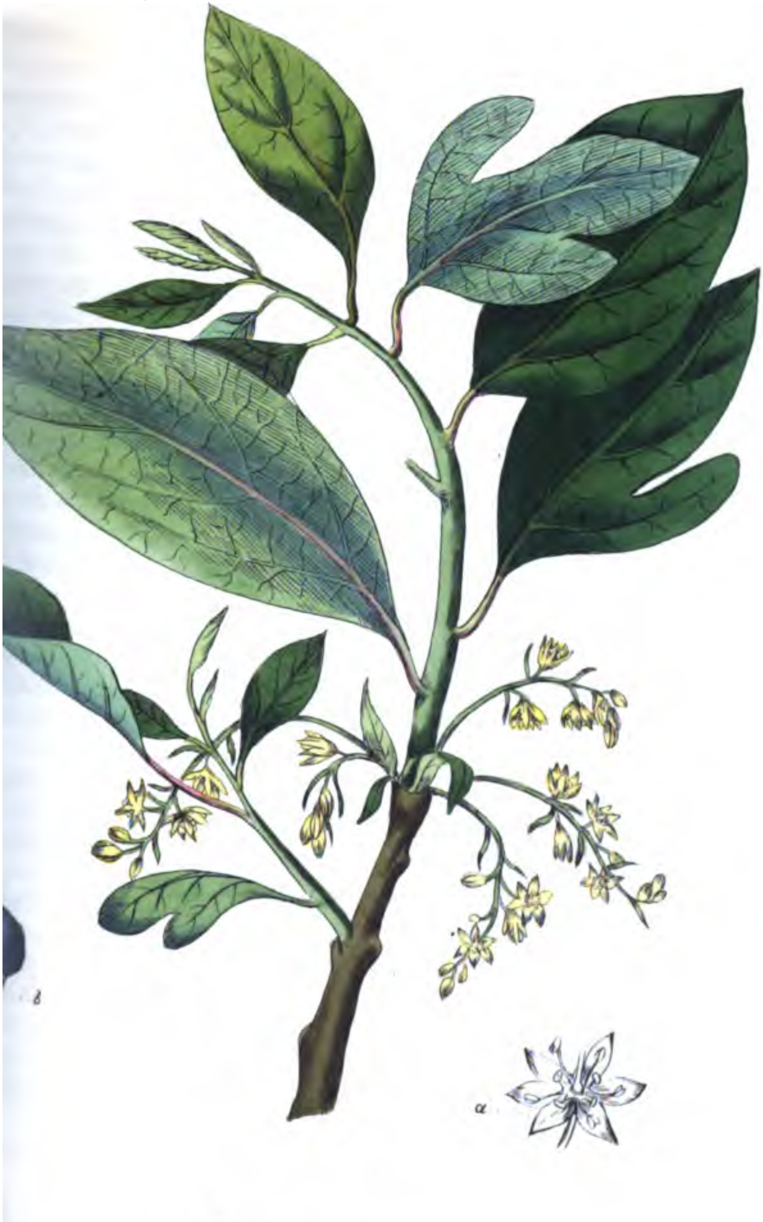
* Ainslie's Mat. Ind. vol. i. p. 309, 310.

† Fig. *a*. a flower, magnified. *b*. The fruit.



Laurus Sassafras.

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Printed by G. E. Madeley

with in many of our botanical gardens, flowering in May and June; but in this country it never rises to the height we are told it is sometimes met with in its native soil, where it is said to grow to the height of twenty or thirty feet, and to measure twelve or fifteen inches in diameter.

The bark of the trunk and older branches is rough, cracked, and of a grey or ash colour: that of the young shoots is smooth, and of a brown green; the leaves vary much both in size and form, some being ovate, pointed and entire, and others divided into two or three lobes; they arise alternately on the branches, are of a pale green colour, and stand upon footstalks, downy when young, but smoother as they attain age; the flowers are produced in pendant panicles or spikes from the extremities of the shoots of the preceding years; the corolla is divided into six narrow convex petals of a yellowish colour, and accompanied by linear pointed bracteas, which are placed at the base of the pedicles; there is no calyx; the filaments are short, bearing heart-shaped anthers; the germen is roundish; style simple; the fruit is an ovate drupe, of a deep blue colour when ripe.

It is said the sassafras tree was first discovered by the Spaniards, in the year 1538, and the wood was first imported into Spain about the year 1560, where it acquired great reputation for curing various diseases, and it is said to have fetched so much as fifty livres per pound. It is imported into this country in long straight billets, covered with its rough fungous bark.

SENSIBLE AND CHEMICAL QUALITIES, &c. Sassafras wood is light, spongy, and of a yellowish colour; it has a peculiar fragrant smell, and a sweetish, aromatic, mucilaginous taste. These qualities reside in a volatile essential oil, which is obtained by distillation with water. The virtues of sassafras are extracted totally by spirit, but imperfectly by water. Rectified spirit extracts the whole taste and odour of sassafras, but elevates nothing in evaporation; hence the spirituous extract proves the most efficacious preparation. The volatile oil smells powerfully of the wood,* is of a yellowish colour, and so ponderous as to sink in water. The bark and young twigs abound with mucilage: a small quantity of the pith infused in a glass of water, is said to give it a ropy consistence like the white of an egg; the mucilage is neither precipitated, coagulated, nor rendered turbid by the addition of alcohol.

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* In some constitutions the fragrance of sassafras is said to prcduce head-ache, and other unpleasant symptoms.—*Ed.*

Medical Properties and Uses. Sassafras soon after its first introduction into Europe, was held in great estimation, and acquired much reputation for curing many diseases; it was supposed to possess sudorific, diuretic, and corroborant powers; and to be peculiarly efficacious in venereal and scorbutic diseases. Whatever might have been the effects produced by this remedy a century ago, in the present day no reliance is placed upon it as a remedial agent for the cure of inveterate diseases; as a gentle stimulant and sudorific, it may be usefully combined with more powerful medicines of the same class. It is seldom used in modern practice but in combination with sarsaparilla, as in the compound decoction of the latter; the essential oil is antispasmodic, stimulant and sudorific, and may be given in doses of from two to five drops, in some suitable vehicle.

Off. The Wood and the Essential Oil, L. E. D.

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MYROXYLON PERUIFERUM.

*Sweet-smelling Balsam Tree.**

Class DECANDRIA.—*Order* MONOGYNIA.

Nat. Ord. LOMENTACEÆ, *Linn.* LEGUMINOSÆ, *Juss.*

GEN. CHAR. *Calyx* bell-shaped, five-toothed. *Petals* five, the upper one larger than the others. *Germen* longer than the corolla. *Legume* with one seed only, at the point.

SPEC. CHAR. *Leaflets* pointed, emarginate.

THE PERUVIAN BALSAM TREE is a native of the warmer regions of South America; growing on the mountains of Panatalmas, in the forests of Muna, Paxaten, Cuchero, and Puzuzu, and in many

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* Fig. *a.* the pericarpium. *b.* A stamen, magnified. *c.* The germen and calyx.

ste rather sweet and aromatic; of a reddish brown colour, and of thick tenacious consistence, becoming brittle by age. It is soluble alcohol and ether. In distillation with water, it yields a small ortion of volatile oil, and impregnates the water with its odour; if e process be continued, a quantity of benzoic acid sublimes. hen digested in the sulphuric and nitric acids, a considerable uantity of pure benzoic acid sublimes, and with the latter some aces of Prussic acid is also evolved. It is also soluble in the alka- s. We are told by Mr. Hatchett, that when it is dissolved in a ry small quantity of the solution of potass, its odour is lost, and it quires the smell of that of the clove pink.

Medical Properties and Uses. Peruvian balsam is stimu- nt and tonic, and has also been regarded as expectorant, hence it s been recommended as an efficacious remedy in obstinate coughs, ronic asthma, and other pulmonary diseases, when attended with increased secretion of mucus; but from its heating and stimu- ting qualities, it is improper in pulmonary diseases attended with flammation. It has also been recommended in paralysis, chronic eumatism, leucorrhœa, gleets, and seminal weaknesses, in which seases, as well as in some other cases of debility, its tonic powers ve proved efficacious. Formerly it was much used as a local ap- ication to foul ulcers, especially to those of an indolent kind, quiring stimulating remedies; and in the hands of the late Mr. hately it appears to have been a very favorite application. It has so been recommended to be dropped into the ear, combined with -gall, in the proportion of one part of the former to three of the ter, in fetid discharges of that organ. Peruvian balsam may be en in doses of from thirty to sixty drops in any proper vehicle, d repeated at intervals according to circumstances.

Tolu Balsam. This balsam possesses similar qualities to the ruvian balsam, and is applicable to the same diseases; it is how- er less heating and stimulating, and may therefore be employed th more safety. It has been much used as a pectoral, and is said be an efficacious corroborant in disorders of the urinary passages. the whole however it is chiefly used on account of its agreeable vour as an adjunct to more powerful medicines, to render them latable. The dose of the balsam is from ten to thirty grains.

Off. Balsam of Peru.
——— Tolu.
Off. Pp. Syrupus Tolutanus, L. E.
Tinctura Toluiferæ Balsami, E.

FICUS CARICA.

Common Fig Tree.[*]

Class Polygamia.—*Order* Triœcia.

Nat. Ord. Scabridæ, *Linn.* Urticæ, *Juss.*

Gen. Char. *Common Receptacle* turbinate, fleshy, converging, concealing the florets, either in the same or a distant individual.

Male. *Calyx* five-parted. *Corolla* none. *Stamens* three.

Female. *Calyx* five-parted. *Corolla* none. *Pistil* one. *Seeds* covered by a permanent, closed, somewhat fleshy calyx.

Spec. Char. *Leaves* palmated.

The Fig Tree is supposed to be a native of Asia, but introduced at a very early period into Europe, where it has long since become naturalized. It is the Σῦκη of the ancient Greeks, the fruit of which they named Σῦκα. In the south of Europe it flourishes in great perfection, but in England, although the fruit commonly ripens, it is not so fine as in the warmer latitudes. The fig tree was introduced into this country about the year 1562,[†] and the first trees that were propagated are supposed to have been planted by Cardinal Pole in the Palace Gardens at Lambeth; these trees are said to continue still to bear excellent fruit.

This tree is of small size, the trunk seldom rising above twelve feet in height, or exceeding seven or eight inches in diameter; its branches are many and spreading, and covered, like the trunk, with a smooth brown bark, which exudes when wounded an odorous milky fluid; the leaves are large, succulent, smooth, or somewhat scabrous, and irregularly divided into three or five lobes; of a deep

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[*] Fig. *a.* represents a male floret magnified. *b.* A male floret of the natural size. *c.* A female floret of the natural size. *d.* A female floret magnified.

[†] Hort. Cantabrigiensis.

warm situations near the River Maranon; and flowering in the months of August, September, and October. It is a very beautiful tree; the trunk rises to a considerable height, straight and smooth; the branches extend almost horizontally, and, like the trunk, are covered with a coarse, compact, heavy bark, externally of a grey colour, internally of a pale yellow, and abounding with a very fragrant resin, which also pervades every part of the tree; the leaves are alternate, and abruptly pinnate; the leaflets are nearly opposite, (and vary in number from two to four or five pairs) petiolate, ovate, lanceolate, with the apex somewhat obtuse and emarginate, entire, very smooth, shining, and veined; the midrib on the under surface pubescent; the common petiole is round and pubescent; the flowers are scattered, and arise on axillary erect racemes, longer than the leaves; the peduncles are slender, roundish, and pubescent, each supported by a very small, erect, ovate, concave bractea; the pedicles are erect; the calyx is bell-shaped, dark green, and divided into five small, nearly equal segments, but with one of them so far separated as to be found under the germen; the corolla consists of five white petals, four of which are narrow, equal, lanceolate, and larger than the calyx, and the fifth reflexed, broad, and double the size of the others; the ten stamens are inclining, and inserted into the calyx, bearing elongated, sharp pointed, sulcated anthers; the germen is oblong, pedicillated, inclining; the style is short, subulate, crooked, and crowned with a simple stigma; the pericarp is straw coloured, club-shaped, somewhat curved, and pendulous, globular near the top, and terminated by the curved style; in the cell (formed at the curved part) it contains a single seed, which is crescent-shaped, and projects from the cell.

This tree was first discovered by Mutis, about the year 1781, who sent a specimen of it, both in fruit and flower, to the younger Linnæus. By the natives inhabiting the countries where this tree grows it is called *Quinquino*, and the bark they use as a perfume. We are told by Ruiz, that the balsam "is procured by incision at the beginning of the spring, when the showers are gentle, frequent and short; it is collected into bottles, where it keeps liquid for some years, in which state it is called *White Liquid Balsam*. But when the Indians deposit the liquid in mats or calabashes, which is commonly done in Carthagena, and in the mountains of Tolu, after some time it condenses and hardens into resin, and is then denominated *Dry White Balsam*, or *Balsam of Tolu*, by which name it is known in the druggists' shops." M. Valmont de Bomare says, in his Dictionary of Natural History, that "if an extract be made from the bark, by boiling it in water, it remains liquid, and of a blackish colour, known under the name of *Black Peruvian Balsam.*" A mixture of resin and some volatile oil, with benzoin, is often sold for Peruvian balsam, and the fraud is not readily detected.

SENSIBLE QUALITIES AND CHEMICAL PROPERTIES. Peruvian balsam is viscid, of a deep reddish brown colour, and of the consistence of honey when first taken from the comb; its odour is very fragrant, with a warm, aromatic, somewhat bitter taste, and, when swallowed, leaves a slight burning sensation in the throat. When boiled with water, the liquid becomes acidulated, reddens vegetable blues, and deposits, on cooling, crystals of benzoic acid. When distilled with water, it yields a small quantity of reddish limpid oil, and benzoic acid sublimes in the neck of the retort; its remaining matter is a resin. At 550° the balsam begins to boil, when exposed to heat in a water bath, and some gas is discharged. At 594° the oil, mixed with a little water, comes over pretty fast. Lichtenberg kept four ounces of balsam at the temperature of 617° for two hours, and obtained two ounces of a yellowish oil, and a crystallized mass of benzoic acid, which, together with the water, weighed six drachms and a half. The gas obtained amounted to fifty-eight ounce measures, thirty-eight being carbonic acid; the rest burnt like olefiant gas. It dissolves completely in sulphuric ether, and also in alcohol, but the latter requires to be in considerable quantity. The alkalies and their carbonates form with it thick masses, which, on the addition of sulphuric acid, let fall a resinous matter, and benzoic acid crystallizes. Treated with nitric and muriatic acids, the presence of Prussic acid is detected, benzoic acid sublimes, and the residual matter is artificial tannin. Mr. Hatchett * found that when this balsam is treated with sulphuric acid, artificial tannin is also formed, and the charcoal remaining amounts to no less than 0.64 of the original weight of the balsam. From the analysis of Stoltze, 1000 parts of balsam consist of 24 of brown, nearly insoluble resin, 207 of soluble resin, 690 of a peculiar kind of volatile oil, 64 of benzoic acid, and 6 of extractive matter.

Tolu Balsam. This balsam was formerly supposed to be the produce of a different tree from that which yields the Peruvian balsam, but it has been ascertained that both balsams are the produce of the Myroxylon above described. The Tolu balsam is, as we have before noticed, the white balsam of Peru hardened by exposure to the air; it comes to this country in gourd shells or calabashes; it has an extremely fragrant odour, somewhat resembling that of lemons;

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* Hatchett, Phil. Trans. 1806.

taste rather sweet and aromatic; of a reddish brown colour, and of a thick tenacious consistence, becoming brittle by age. It is soluble in alcohol and ether. In distillation with water, it yields a small portion of volatile oil, and impregnates the water with its odour; if the process be continued, a quantity of benzoic acid sublimes. When digested in the sulphuric and nitric acids, a considerable quantity of pure benzoic acid sublimes, and with the latter some traces of Prussic acid is also evolved. It is also soluble in the alkalies. We are told by Mr. Hatchett, that when it is dissolved in a very small quantity of the solution of potass, its odour is lost, and it acquires the smell of that of the clove pink.

MEDICAL PROPERTIES AND USES. Peruvian balsam is stimulant and tonic, and has also been regarded as expectorant, hence it has been recommended as an efficacious remedy in obstinate coughs, chronic asthma, and other pulmonary diseases, when attended with an increased secretion of mucus; but from its heating and stimulating qualities, it is improper in pulmonary diseases attended with inflammation. It has also been recommended in paralysis, chronic rheumatism, leucorrhœa, gleets, and seminal weaknesses, in which diseases, as well as in some other cases of debility, its tonic powers have proved efficacious. Formerly it was much used as a local application to foul ulcers, especially to those of an indolent kind, requiring stimulating remedies; and in the hands of the late Mr. Whately it appears to have been a very favorite application. It has also been recommended to be dropped into the ear, combined with ox-gall, in the proportion of one part of the former to three of the latter, in fetid discharges of that organ. Peruvian balsam may be given in doses of from thirty to sixty drops in any proper vehicle, and repeated at intervals according to circumstances.

Tolu Balsam. This balsam possesses similar qualities to the Peruvian balsam, and is applicable to the same diseases; it is however less heating and stimulating, and may therefore be employed with more safety. It has been much used as a pectoral, and is said to be an efficacious corroborant in disorders of the urinary passages. On the whole however it is chiefly used on account of its agreeable flavour as an adjunct to more powerful medicines, to render them palatable. The dose of the balsam is from ten to thirty grains.

Off.	Balsam of Peru.
	——— Tolu.
Off. Pp.	Syrupus Tolutanus, L. E.
	Tinctura Toluiferæ Balsami, E.

FICUS CARICA.

Common Fig Tree.[*]

Class POLYGAMIA.—*Order* TRIŒCIA.

Nat. Ord. SCABRIDÆ, *Linn.* URTICÆ, *Juss.*

GEN. CHAR. *Common Receptacle* turbinate, fleshy, converging, concealing the florets, either in the same or a distant individual.

Male. *Calyx* five-parted. *Corolla* none. *Stamens* three.

Female. *Calyx* five-parted. *Corolla* none. *Pistil* one. *Seeds* covered by a permanent, closed, somewhat fleshy calyx.

SPEC. CHAR. *Leaves* palmated.

THE FIG TREE is supposed to be a native of Asia, but introduced at a very early period into Europe, where it has long since become naturalized. It is the *Σ'υκη* of the ancient Greeks, the fruit of which they named *Σ'υκα.* In the south of Europe it flourishes in great perfection, but in England, although the fruit commonly ripens, it is not so fine as in the warmer latitudes. The fig tree was introduced into this country about the year 1562,[†] and the first trees that were propagated are supposed to have been planted by Cardinal Pole in the Palace Gardens at Lambeth; these trees are said to continue still to bear excellent fruit.

This tree is of small size, the trunk seldom rising above twelve feet in height, or exceeding seven or eight inches in diameter; the branches are many and spreading, and covered, like the trunk, with a smooth brown bark, which exudes when wounded an odorous milky fluid; the leaves are large, succulent, smooth, or somewhat scabrous, and irregularly divided into three or five lobes; of a deep

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[*] Fig. *a.* represents a male floret magnified. *b.* A male floret of the natural size. *c.* A female floret of the natural size. *d.* A female floret magnified.

[†] Hort. Cantabrigiensis.

green colour on the upper surface, with a pale green longitudinal vein to each lobe; the under surface is of a pale green, reticulated and downy; they stand upon strong, round footstalks; the fruit in its early stage serves as a common receptacle, and contains upon its inner surface all the florets, which are both male and female: the former has the proper calyx divided into three segments, which are lance-shaped, erect, and equal; there is no corolla; the filaments are bristly, the length of the calyx, and support double anthers; the proper calyx of the female florets is divided in five pointed segments; the germen is ovate, with a tapering style, inflexed and crowned with two pointed, reflexed stigmas; the seed, which is roundish and somewhat compressed, is contained in the calyx.

The fig tree appears to have been cultivated at a very early period, and the fruit both as an article of food and for medicinal purposes, was held in great estimation by the ancients, who took much pains to bring it to perfection by a process termed caprification, which in some countries is still continued. The cultivators had observed that the fruit of this tree frequently withered and dropped off before it arrived at a state of maturity, and upon examination it was discovered that those figs succeeded best which had been perforated by certain winged insects, which, therefore, were supposed to be instrumental in ripening the fruit. This gave rise to caprification, which formerly consisted in tying near the young figs the fruit of the wild fig tree, in which the flies above mentioned breed in abundance; these insects upon acquiring sufficient strength, issue from the wild fruit, and by penetrating the young figs produce the effect intended. That this insect, which by the ancients was called *Psenes*, or *Culex*, and by Linnæus *Cynips Psenes*, produced this desirable effect is generally admitted; and which appears to arise from the larvæ crawling within the figs, thereby scattering the pollen, and thus perfecting the impregnation of the female florets. The figs when ripe are dried, either by the heat of the sun or in ovens, to preserve them: the latter mode is preferred, as it destroys any of the larvæ of the Cynips that may remain; when sufficiently dry they are closely packed in small chests, as we see them in this country. The best figs are imported from the southern parts of Europe, and the most luscious are said to be those of Kalamata in the Morea.

QUALITIES, &c. The recent fruit is soft, luscious, and succulent; the dried, as imported, has a peculiar sweet taste; externally of a brownish colour, crusted over with crystals of sugar; internally it consists of a sweet viscid pulp, in which are scattered numerous small lenticular seeds of a yellow colour. Figs consist almost entirely of mucilage and sugar.

Medical Properties and Uses. Figs are considered to be very nutritious and wholesome, but when eaten too freely they often occasion flatulence and diarrhœa. Medicinally they are esteemed useful as a demulcent and pectoral, and as such they are given in decoction in pulmonary and other inflammatory complaints. The decoction also forms an useful gargle in cynanche tonsillaris, after suppuration has taken place. They are also usefully combined with many aperient medicines to assist their operation. Externally they have been applied in the form of cataplasm, to promote the suppuration of phlegmonous tumours of the gums, buboes, &c.

There is no officinal preparation of figs, but they enter into the composition of the compound decoction of barley of the London and Dublin Pharmacopœias, and also into the compound electuary of senna of the Edinburgh.

Off. The preserved fruit.

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GEOFFROYA INERMIS.

*The Cabbage Tree.**

Class Diadelphia.—*Order* Decandria.

Nat. Ord. Papilionaceæ, *Linn.* Leguminosæ, *Juss.*

Gen. Char. *Calyx* five-parted. *Drupe* ovate. *Nucleus* compressed.

Spec. Char. *Leaflets* lanceolate.

This tree is a native of Jamaica, growing in the low savannahs, where it is distinguished by the name of cabbage-bark tree, or worm-bark tree. The trivial name, *Inermis*, was given to this species of Geoffroya by Dr. Wright, of Jamaica, from its being destitute of thorns, in contradistinction to the *Geoffroya Spinosa*,

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* Fig. *a.* *b.* and *c*, the petals. *d.* The calyx. *e.* The pistillum. *f.* The stamens.

of Linnæus, another species of the same genus. This tree was first introduced into England by Messrs. Kennedy and Lee, who cultivated it in their botanical gardens at Hammersmith, about the year 1778.

This is a lofty tree; towards the top it sends off several branches, covered with a smooth grey bark; internally the bark is black and furrowed; the wood is hard, and admits of being highly polished; the leaves are pinnate, composed of four or five pairs of lancet-shaped, pointed, veined, smooth leaflets, standing in pairs upon short footstalks, with a terminal one; the flowers are produced in clusters on large branched spikes; the calyx is bell-shaped, and divided into five short obtuse segments; the corolla is of the papilionaceous kind, of a pale rose colour; the *vexillum* is roundish, concave, and notched at the apex; the two alæ are somewhat shorter than the vexillum, oblong, obtuse, and concave; the carina is obtuse and divided; the filaments are ten, nine of which are united at the base; the anthers are simple and roundish; the germen is ovate, supporting a curved tapering style and hooked stigma; the fruit resembles a small plum, is pulpy, and marked on each side with a longitudinal furrow, containing a hard nut, or seed.

SENSIBLE QUALITIES, &c. The bark of the cabbage tree has a disagreeable, sweet, mucilaginous taste, and a slight but disagreeable odour. The pieces, as they are imported into this country, are externally of a grey colour; internally blackish and furrowed; when reduced to powder resembling that of jalap. Its soluble parts seem to be composed chiefly of extractive, resin, mucus, a peculiar narcotic principle, and saccharine matter.

MEDICAL PROPERTIES AND USES. Cabbage tree bark was first brought into notice as a vermifuge by Mr. Peter Duguid,* and its properties as an anthelmintic have been fully confirmed by subsequent writers; but we are chiefly indebted to Dr. Wright, of Jamaica, for the fullest information, both in respect to the botanical character and virtues of this tree. "This bark, like most other powerful anthelmintics, has a narcotic effect, and on this account it is always proper to begin with small doses, which may be gradually increased till nausea is excited, when the dose for that patient is ascertained." It is also powerfully cathartic, and in an over dose excites violent vomiting, fever, and delirium: when these effects follow an over dose, the stomach must be washed with warm water; the patient must speedily be purged with castor oil, and use plenty of lime-juice beverage for common drink; vegetable acid being a powerful antidote in this case, as well as in an over dose of opium. Care must be taken that cold water be not drank during the operation of this medicine, as it is apt to occasion the same untoward effects as an over dose. This bark (in powder) acts briskly cathartic in doses of thirty or forty grains; but its anthelmintic effects are more powerful when given in the form of decoction, of which an adult may at first take four table spoonfuls, and gradually increase the dose if sickness be not excited: in this way it seldom fails in destroying worms, and bringing them away in great quantities. "It must not be concealed that fatal accidents have happened from the imprudent administration of this bark, chiefly from overdosing the medicine. But this cannot detract from the merit of the cabbage-bark, since the best medicines, when abused, become deleterious." Upon the whole, we consider the bark as a valuable anthelmintic, although in this country it is not held in general estimation. This bark may be taken in the form of powder, decoction, extract, or syrup. The decoction is prepared by boiling one ounce of (fresh dried or well preserved) bark in a quart of water over a slow fire, till the water is of an amber colour, then strain off and sweeten with sugar; this should be used immediately, as it does not keep many days. Syrup of cabbage-bark: to any quantity of the above decoction, add a double portion of sugar, and make a syrup; this will retain its virtues for many years. The extract is prepared by evaporating a strong decoction in balneo mariæ to the proper consistence.

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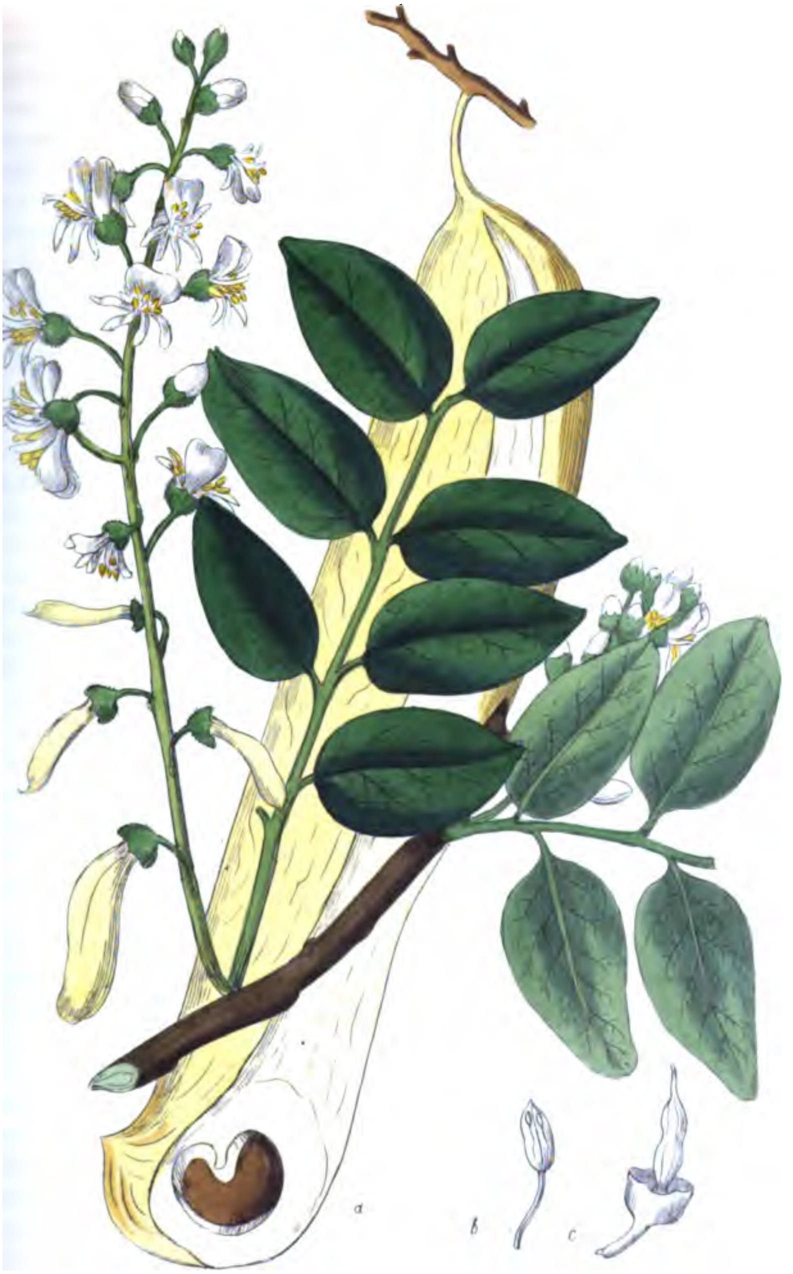
* Essays and Observations, Physical and Literary, vol. ii. p. 264.

The powder may be taken in doses of from thirty to forty grains, the syrup from three to four table spoonfuls, and the extract from three to four grains.

Off. The Bark.
Off. Pp. Decoctum Geoffroyæ Inermis, E.



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Printed by G. E. Madeley,
3 Wellington St. Strand

Myroxylon Peruiferum.

CENTAUREA BENEDICTA.

Blessed Thistle.[*]

Class SYNGENESIA.—*Order* POLYGAMIA FRUSTRANEA.

Nat. Ord. COMPOSITÆ CAPITATÆ, *Linn.*
CINAROCEPHALÆ, *Juss.*

GEN. CHAR. *Receptacle* bristly. *Seed-down* simple. *Corolla* of the ray funnel-shaped, dilated, irregular.

SPEC. CHAR. *Capsules* doubly spinous, woolly, involucred. *Leaves* semi-decurrent, toothed, spiny.

THIS species of Centaury is an annual plant, a native of the south of Europe, growing spontaneously in Spain, Barbary, and the Grecian Islands, flowering from June to September. It has been long cultivated in Britain, the first account of which is given by Gerarde in his Herbal, in 1597.[†] It is now to be met with in many of our botanical gardens, but is not in general cultivation. The specific name (Benedictus) given to this plant, was probably in consequence of the very extraordinary medicinal virtues it was supposed to possess, the ancients believing it capable of curing the most malignant diseases, viz. the plague and other contagious fevers,[‡] cancers, carious bones, &c. But the blessed or holy thistle of the moderns does not appear to possess virtues sufficient to entitle it to retain so sacred an appellation.

The root is cylindrieal, branched, of a whitish colour, and furnished with many slender fibres; the stem is erect, roundish, channelled, rough, and rises to the height of about two feet, and often branched towards the top; the leaves are long, elliptical, rough, runcinated, and barbed with sharp points, of a bright green above, beneath, whitish and reticulated; the stem leaves are sessile, and in some degree decurrent: the lower ones stand upon footstalks; the flowers are surrounded by an involucre of ten leaves; of these the five external ones are largest; the calyx is oval, imbricated, woolly, and consists of squamous scales, terminated by pinnate, spinous points: the flowers are of a yellow colour: those of the ray small, trifid, and sterile: those of the centre hermaphrodite, tubular, and unequally divided at the limb; the filaments are five, tapering, white, downy, and inserted in the base of the corolla; the style is filiform; the stigma cloven; the seeds are oblong, bent, deeply serrated, of a brownish colour, and crowned with a double pappus; the receptacle is paliaceous.

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[*] Fig. *a.* represents a scale of the calyx. *b.* A single floret. *c.* The style. *d.* The stamens and anthers. *e.* a floret, a little magnified, the calyx being removed.

[†] The genus Centaurea comprises upwards of eighty species, many of which are cultivated in our botanic gardens.

[‡] Matthiol. in Dioscor. p. 597.

Sensible Qualities, &c. The odour of this plant is weak but unpleasant; its taste intensely bitter. These qualities are extracted both by alcohol and water. Cold water poured on the dry leaves extracts, in an hour or two, a light, grateful bitterness; by standing longer upon the herb the liquor becomes disagreeable. Rectified spirit in a short time extracts the lighter bitter of the plant, but does not take up the nauseous so readily as water. The watery infusion is of a yellowish green colour, which is changed to a deep olive by sulphate of iron; pure alkali changes it to an orange brown, but the carbonates do not affect it. Superacetate of lead and nitrate of silver occasion copious precipitates.

Medical Properties and Uses. The medicinal effects of this plant are various, depending upon the form and strength of the preparation which is administered. The weak watery infusion drank warm produces copious perspiration; a strong infusion or decoction of the herb induces vomiting. The watery infusions made, either with hot or cold water, sufficiently strong to taste moderately bitter, and drank cold, proves an efficacious tonic in dyspepsia, debility of the digestive organs, and in loss of appetite. The infusion when administered as a tonic, may be made with six drachms of the herb to the pint of water, of which a wine-glassful should be taken several times a day. The leaves are also given in powder, in doses of from ten grains to one drachm. This plant is, however, almost excluded from modern practice. Formerly it was the practice to assist the operation of emetics by drinking an infusion of the Centaurea Benedicta; but the flowers of chamomile have since been substituted for this purpose, and probably for every other use the latter may be equally efficacious.

Off. The herbaceous part, or the Leaves.

GLYCYRRHIZA GLABRA.

Common Liquorice.[*]

Class DIADELPHIA.—*Order* DECANDRIA.

Nat. Ord. PAPILIONACEÆ, *Linn.* LEGUMINOSÆ, *Juss.*

GEN. CHAR. *Calyx* bilabiate, upper lip three-cleft, lower lip undivided. *Legume* ovate, compressed.

SPEC. CHAR. *Legume* smooth. *Stipules* none. *Leaflets* petioled.

THE LIQUORICE plant is a native of the south of Europe, and Syria. According to Dr. Fleming's catalogue of Indian plants, it grows in the Bengal provinces; and Dr. Ainslie says, "we know that it is a product of the Malabar coast, where it is called *Irattimadhiram*; but I am much inclined to think that a great deal of the liquorice root which is met with in the bazaars of Lower India, is imported from Persia.[†] The root of the wild Jamaica liquorice (Abrus Precatorius, *Linn.*) greatly resembles the true liquorice, both in its appearance and sensible qualities, so that it is often sold for it and used as such in India." It appears to have been cultivated in Britain about the middle of the sixteenth century,[‡] since which time it has been propagated in considerable quantities for medicinal and other purposes. The principal places where it was formerly most extensively cultivated, are Godalming in Surry, Pontefract in Yorkshire, and Worksop in Nottinghamshire; but it is now grown by many gardeners in the vicinity of the metropolis, and the London markets are chiefly supplied from Mitcham, in Surry. The roots are dug up for use after three years' growth; and are equal in every respect to those produced in their native climate. After washing the roots, the fibres are cut off, and the larger roots separated from the smaller; the latter, termed the offal, is dried and ground to powder; the former are packed for the markets.

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[*] Fig. 1, 2, and 3, the petals. *a.* The calyx. *b.* The stamens. c. The pistillum.

[†] Mat. Med. vol. i. p. 200.

[‡] Turn. Herb. part 2, fol. 12, pub. in 1562.

The root is perennial, long, round, succulent, pliable, furnished with fibres, and running to the length of two or three feet into the soil; in thickness, varying from the size of a goose quill to that of the thumb; externally of a light brownish colour, internally yellow and juicy; the stalks rise erect, to the height of four or five feet, herbaceous, striated and branched; the leaves are alternate, pinnated, consisting of several pair of ovate, veined, retuse, petiolated leaflets, with an odd one, of a pale green colour, and somewhat clammy on the under side; the flowers are papilionaceous, of a blue or purplish colour, and are produced in long spikes, arising from the axillæ of the leaves; the calyx is persistent, tubular, and divided into two lips, which are cut into narrow pointed segments; the *vexillum* of the corolla is erect, lance-shaped, concave and obtuse; the *alæ* are oblong, obtuse, and larger than the *carina*, which is about the length of the calyx; the filaments are ten, nine of which are joined at the base; the anthers are simple and somewhat round; the germen is shorter than the calyx; the style tapering, and terminated by a blunt stigma; the legumes are ovate, compressed, pointed, smooth and one-celled, containing two or three small kidney-shaped seeds; the flowers are produced in August.*

SENSIBLE QUALITIES, &c. Liquorice root is inodorous; its taste sweet and mucilaginous, but when chewed for some time it leaves a degree of bitterness in the mouth; when dried and reduced to powder it has a rich sweet taste, more agreeable than the recent root. The root when lightly boiled in water gives out nearly the whole of its saccharine and mucilaginous matter; the decoction passed through a strainer, and inspissated by a gentle heat to a proper consistence is superior to the foreign extract; and its quantity amounts to nearly half the weight of the root. Alcohol takes up all the saccharine matter of the root; hence the spirituous tinctures and extracts are sweeter than the watery; by long coction its sweetness is greatly impaired, and the preparation acquires an ungrateful bitterness and black colour.

MEDICAL PROPERTIES AND USES. As a remedial agent, liquorice root is not very powerful; but, from the quantity of mucilage and sugar it contains, it proves a pleasant demulcent, and when taken in the form of decoction or infusion, proves of consider-

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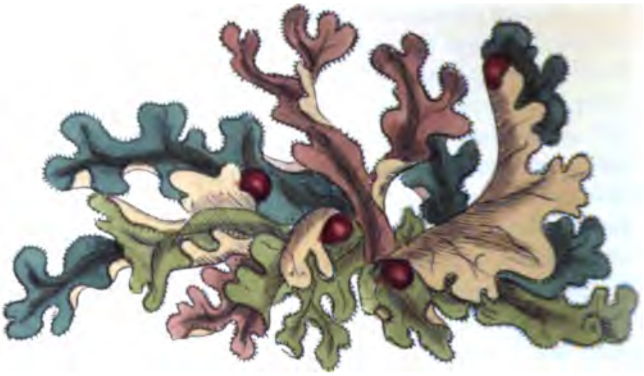
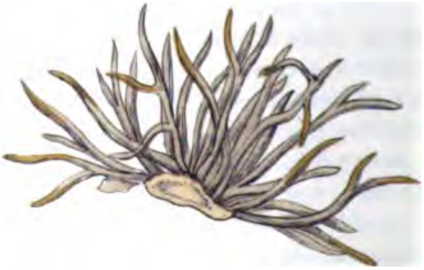
* There are six different species of liquorice cultivated in our botanical gardens, of which the Glycyrrhiza Echinata, (prickly capsuled,) a native of Italy, is sometimes propagated for the sake of roots, but they are not so sweet and succulent as those of the Glycyrrhiza Glabra, hence not so much esteemed.



Linchen Islandicus.



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Linchen Rocella.

able efficacy in coughs, hoarseness, phthisical cases, &c.: it has also been given with good effect in some cases of dyspepsia. It has been said to possess the power of abating thirst in a very considerable degree, hence it was named *αδιψον*, and the root directed to be chewed in dropsies, and other disorders where much thirst prevailed.[*] Infusions or extracts made from the roots of liquorice afford likewise very commodious vehicles for the exhibition of other medicines, the flavour of the liquorice concealing that of many unpalatable drugs more effectually than saccharine preparations. The decoction may be taken to the quantity of a tea-cupfull, *ad libitum:* the powder from grs. xv. to ʒi. three or four times a day. Liquorice enters into the composition of the following preparations: Decoctum Sarsaparillæ Compositum, L. D.; Confectio Sennæ, L. E.; Infusum Lini, L.

Off. The Root.
Off. Pp. Extractum Glycyrrhizæ, L. E. D.

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LICHEN ISLANDICUS.

Iceland or Eryngo-leaved Liverwort.

Class CRYPTOGAMIA.—*Order* ALGÆ.
Nat. Ord. ALGÆ, *Linn.*

GEN. CHAR. Male. Scattered warts.
Female. Smooth shields or tubercles, in which the seeds are embedded.

SPEC. CHAR. *Frond* leafy. *Lobes* irregularly linear, margins elevated, fringed or toothed.

THIS species of Lichen is perennial, indigenous to the northern parts of Britain;[†] but more abundantly found in the north of Germany and Iceland. It is usually met with in elevated situations, and is more or less common on all the mountainous heaths and woods of the north of Europe: it has also been found growing in great abundance in the Asturias.[*]

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[*] Vide Pliny, lib. xxii. c. 9. Theoph. 4, 9. cap. 13.

[†] The late Sir J. E. Smith gathered it on the Pentland Hills, near Edinburgh, on Ben Lomond, and some other parts of Scotland.

Iceland liverwort, or moss, grows to the height of about two or three inches, large, erect, bushy, crowded and connected together; the frond is tough, dry, coriaceous, lobed and sinuated; the lobes are variously lacinated, turned in at the edges, and the margins beset with short strong bristles; their surface is smooth, shining, of a pale green or brown colour, above concave, beneath convex; the fructifications or shields are large, of a reddish brown colour, and placed on the lobes of the leaf or frond.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Iceland liverwort is inodorous; its taste is mucilaginous and slightly bitter. The dried plant, in appearance, resembles the recent; it is neither very tough or brittle, but in the former state it is more pulverizable. When macerated in water, it absorbs more than its own weight of the fluid; the watery infusion made with boiling water is inodorous, of a pale yellowish colour, and bitter taste. Lichen macerated in water, and afterwards boiled, affords a decoction which thickens as it cools, and becomes a tremulous jelly resembling starch; after some time the jelly cracks, separates from the watery part, and dries into semi-transparent masses, which are soluble in boiling water, but not in cold, and may be again precipitated by infusion of galls. The watery infusion is changed red by sulphate of iron: according to the analysis of Proust, Lichen affords about one-third of starch, and two-thirds of a substance insoluble in hot water, resembling the gluten of wheat, with a small quantity of a bitter extractive matter.

MEDICAL PROPERTIES AND USES. Iceland moss is esteemed demulcent and tonic. It appears to have been employed for a long period in Sweden as a popular remedy in coughs and pulmonary disorders, in which diseases it is noticed by Linnæus; but the attention of physicians was not excited to this remedy until Scopoli published his observations on it in the year 1769; subsequently several instances of its good effects in consumptive disorders were related by many of the continental physicians, viz. Cramer, Tromsdorff, Stoll, Herz, and others, who not only recommended it in phthisical cases, but in dysentery, malignant fevers, worms, &c. Although the remedial effects of this plant have not answered the expectations that were first formed of it, nevertheless as a palliative in phthisis, and other disorders of the lungs, it must be admitted to afford the same good effects that can be obtained from other demulcents, and the mucilages. Iceland Lichen however must not be regarded as a demulcent only, for owing to the bitter principle it contains, its tonic powers are not inconsiderable; and to the combination of these properties, its good effects in phthisis are to be attributed. Dr. Crichton informs us that, from what he has seen, he is fully convinced there are only two species of this disease where Lichen promises a cure, viz. phthisis hæmoptoica, and phthisis pituitosa, or mucosa. In several of these, he says, "I have seen the patients so far get the better of their complaints as to be dismissed cured; but whether they remained long so or not, I cannot take upon me to say." Lichen has certainly considerable effects in allaying tickling cough; it also relieves the breathing when oppressed, and involves the acrid matters contained in the stomach and bowels, which are often the cause of diarrhœa; it renders the animal fluids more bland, by which it tends to mitigate hectic fever; and at the same time, its tonic powers invigorate the digestive organs. This Lichen is also useful in debility after acute diseases, and in emaciations, particularly those arising from the great discharge of ulcers; and also in diarrhœa, dysentery, the sequelæ of measles, hooping cough, &c. It has been used (in decoction) as an enema in hæmorrhoids, and as an injection in gonorrhœa. That this Lichen strengthens the digestive powers, and proves extremely nutritious, there can be no doubt; hence it has been recommended to be taken in considerable quantities as an article of diet; but when used as a dietetic article, it requires to be deprived of its bitter principle, which may be done by infusing it for a short time in boiling water, after which it is to be boiled in a fresh quantity of water or milk, in the proportion of one or two ounces of Lichen to one quart of water or milk. Of this, a tea-cupful may be drank frequently in the course of the day. This is the only form in which Lichen is prescribed.

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[*] Journ. de Physique, 1806.

Off.	Lichen, or Iceland Liver-wort.
Off. Pp.	Decoctum Lichenis, L. D.

LICHEN ROCELLA,

Dyer's Lichen, or Orchall.

Spec. Char. *Frond* cylindrical, solid, but little branched. *Tubercles* alternate, powdery.

This species of Lichen is the λειχην of Dioscorides, and the Phycos Thalassion of Pliny. It is an indigenous plant, found on the maritime rocks of the south of England, particularly in Portland Island, but it does not grow in any great abundance. It grows very plentifully in the Levant, Canary Islands, &c. from whence it is imported into this country to supply the markets. The Canary Islands alone are said to produce two thousand six hundred quintals annually, and from this abundance of orchall which they produce, the ancients named them the Purple Isles.* From this Lichen is prepared the *Argol*, or archil, so much used as a dye-stuff.

The Lichen Rocella is a small species, seldom exceeding two inches in height, and is firmly fixed to the rocks by a solid base, from which rises a tuft of small, round, smooth, acutely pointed stems, more or less branched, of a whitish grey, or brownish hue, and studded towards their upper part with scattered tubercles, replete with white powder, which has been supposed to be the seed; but the fructification of this plant, as well as many other species of the same tribe, is not well understood.

The preparation of the archil from this species of Lichen was long kept a secret by the Dutch,† who manufactured it into a paste, called by them *Lacmus*, or *Litmus*; this was sold in square, hard, brittle masses, about an inch in length, and half an inch in breadth and thickness. Archil is now prepared in this country, and large manufactories of it are carried on in London and Liverpool. The Lichen, after being dried and cleaned, is reduced to powder in a mill; it is then mixed in a vat with one-half its weight of pearl-ash, and moistened with human urine; fermentation soon succeeds, and is kept up by stirring, and by successive additions of urine, until the colour of the mass changes first to red and then to blue. In this state it is mixed with a third of its weight of good potass, and spread out to dry.[*] Chalk is sometimes added to it, but with no other view than to increase the weight. It is usually sold in the form of cakes, but sometimes in that of a moist pulp.[†]

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* Mem. de l'Acad. des Inscriptions, tom. iv. p. 457.

† The persons by whom *archil*, or *litmus*, was formerly prepared, with the view to keep it a secret, gave it the name of tincture of *turnsole*, pretending that it was extracted from the turnsole, Heliotropium Europeum.

SENSIBLE QUALITIES, &c. OF ARCHIL. Prepared archil has a violet odour, derived from the orris root, with which it is always more or less mixed; its taste is mawkish with some degree of pungency. It communicates both to water and alcohol a beautiful violet colour, which changes to red by the addition of any acid; the red colour is again destroyed, and replaced by the violet, by adding a portion of any of the alkalies. Litmus is used in chemistry as a test to detect the presence of acid or alkaline substances. Paper stained with litmus changes to red by acids, and has the blue colour restored by an alkali. By the addition of a little solution of tin, archil gives a durable dye of a fine scarlet colour. It is least liable to change when reddened by an acid, and kept in close vessels.

MEDICAL PROPERTIES, &c. Formerly this species of Lichen was used medicinally in disorders of the lungs, attended with tickling coughs, &c. It is not now considered to possess any remedial efficacy, and the only use to which it is applied, is in the preparation of archil, the uses of which we have already mentioned.

Off. Litmus.

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[*] Nicholson's Journal, vol. ii. p. 811.

[†] We may mention that another species of Rocella, the Rocella Fusiformis, is said to vie in richness of colouring matter with the common orchall, while the plant attains a much larger size. This species occurs sparingly on the rocks of the south of Europe, but it is said to abound in the East Indies, especially on the shores of Sumatra.

KRAMERIA TRIANDRA.

Triandrous or Peruvian Krameria.[*]

Class TETANDRIA.—*Order* MONOGYNIA.

GEN. CHAR. *Calyx* none. *Petals* four. *Nectaries* two: the superior three-parted, the inferior two-leaved. *Berry* dry, echinated, and containing one seed.

SPEC. CHAR. *Leaves* oblong-ovate, pointed. *Stamens* three.

THIS species of Krameria[†] is a native of Peru, delighting in a dry argillaceous or sandy soil. It is found growing very abundantly on the declivities of the mountains in the provinces of Tarma, Huanuco, Caxtambo, and Huamilies. It was first discovered by Don Hypolito Ruiz, in the year 1780, in the provinces of Tarma and Xanca. Humboldt found it in the province of Guancabunba. It grows also in abundance near the City of Huanuco, and in the vicinity of Lima. It flowers throughout the year, but in the greatest perfection in October and November.

The roots of this shrub are very long, spreading, and much branched, externally of a dark reddish brown, internally red, and having an intensely bitter, styptic taste; the stem is procumbent, round, and much branched; the branches, when young, are white and silky, but as they grow older, the lower part becomes naked, and acquires a blackish colour; the leaves are scattered, sessile, oblong-ovate, pointed, entire, and covered with a white silky pubescence on both surfaces; the flowers are terminal, solitary, and stand upon short peduncles; the corolla consists of four petals, of a deep lake colour: the inferior are somewhat larger than the others: they are all smooth and glossy on their internal surface, but seriaceous externally; the nectary is composed of four leaves, the two upper being

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[*] Fig. *a.* the pistil. *b.* The seed vessel divided transversely. *c.* The leaves of the nectaries. *d.* The seed. *e.* The stamens and pistil.

[†] The roots are also known by the name of Ratany, derived from the creeping manner of their growth.—*Ed.*

spathulate, the two lower roundish, concave, and scale-like; the stamens are three; the filaments are flesh coloured, and inserted between the superior leaflets of the nectary and the germen; the anthers are small, urceolate, and terminated with a parcel of very short hairs, and perforated with two holes at the apex; the germen is ovate; the style is awl-shaped, and of a red colour, supporting a simple stigma; the germen becomes a dry, globose drupe, covered with short, stiff, reddish hairs.

The root of this plant is collected after the rains. As it comes to market it consists of pieces of various sizes, but seldom exceeds half an inch in thickness. We are told that large quantities of this root is imported into Portugal, for the purpose of colouring and improving the astringency of red wine, and that a saturated tincture of the root in brandy is known by the name of wine colouring.

SENSIBLE AND CHEMICAL PROPERTIES. Ratany root breaks short, and exhibits a woody centre, surrounded with a fibrous red bark of considerable thickness. The cortical part of the root has a bitter, astringent taste; when first chewed it is somewhat nauseous, but leaves a sweetish impression in the mouth. The internal woody part is tough and fibrous, and its taste insipid and mucilaginous. Ratany root yields its sensible qualities both to cold and boiling water, and also to proof spirit. The watery infusion is of a dark brown colour, with a very bitter astringent taste: by the addition of pure alkalies, the colour of the infusion changes to a deep claret red, sulphate of iron strikes a black colour, and acetate of lead throws down a pale brown precipitate, leaving the infusion nearly colourless. The mineral acids, when added to the infusion, throw down copious precipitates; but no precipitate is caused by either citric, acetic, or the oxalic acids. The cortical part of Ratany root, when digested in alcohol or ether, yields a deep reddish brown tincture; the latter solution is not of so deep a colour as the former, which, when poured into water, lets fall a copious pink coloured precipitate. The ethereal tincture, when evaporated on water, leaves a pellicle of dark red resin on the surface, and a portion of extractive is diffused through the water, giving to it a pale brown colour. According to Vogel, the constituents of 100 parts of the root contains 40.00 of a peculiar principle, 1.50 of mucilage, 0.50 starch, 48.00 fibrine, and 10.00 of water and loss. We are also told by Vogel, that the extract of Ratany root,* when heated, swells very much and melts, and in this it

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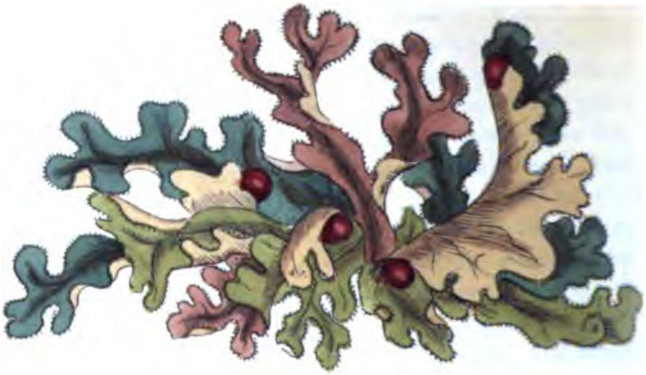
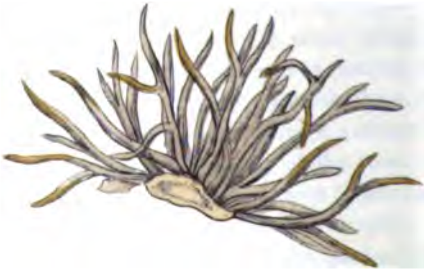
* The extract is prepared in South America by the natives, who inspissate the expressed juice of the root in the sun to a proper consistence.



Linchen Islandicus.



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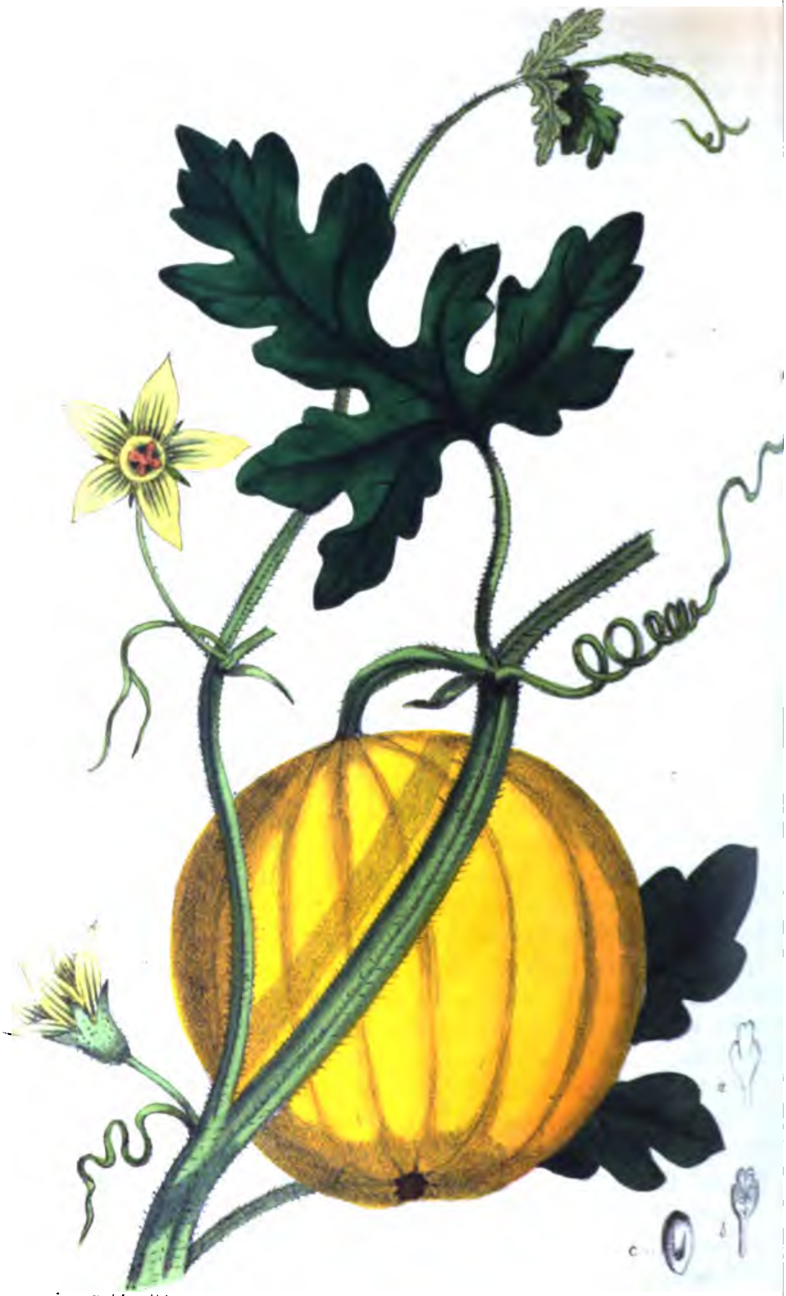
Linchen Rocella.



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Cucumis Colocynthis

of this tincture, one or two tea-spoonfuls may be taken (diluted with a little water) three or four times a day. The extract, which is also much used, we have given in doses of from ten to twenty grains.

Off. The Root.

CUCUMIS COLOCYNTHIS.

Bitter Cucumber.[*]

Class MONŒCIA.—*Order* SYNGENESIA.

Nat. Ord. CUCURBITACEÆ.

GEN. CHAR. Male. *Calyx* five-toothed. *Corolla* five-parted. *Filaments* three.

Female. *Calyx* five-toothed. *Corolla* five-parted. *Pistil* three-cleft. *Seeds of the Gourd* sharp at the edge.

SPEC. CHAR. *Leaves* multified. *Fruit* globose, smooth.

THIS species of Cucumis is the Κολυκυνθις of Dioscorides; it is supposed to be a native of Asia and Africa. Burchell, in his travels in Southern Africa,[†] says, that he saw a great many of the colocynth melons scattered on the ground near the *Breed* river, in the district of Roodezand; and Burckhardt saw them lying on the ground in great profusion in the desert of Nubia, called *Wadyom-gat.*[‡] We are told by Gerarde, that it is a common plant on the shores of the Mediterranean sea; and Dr. Ainslie says, the plant which produces the coloquintida may be found in many parts of Lower India, particularly in sandy situations in the neighbourhood of the sea.[§] It appears to have been cultivated in Britain in the time of Turner, but although it flowers in tolerable perfection by sowing the seeds in a hot-bed, it rarely produces any fruit.

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[*] Fig. *a.* and *b.* two views of an anther. *c.* A seed.

[†] Page 126.

[‡] Burckhardt's Travels through Nubia, p. 184.

[§] Ainslie's Mat. Ind. vol. i. p. 84.

This plant is an annual, flowering from May till August. The root is white, and divided into long branches, which strike deep into the ground; the stems trail, like those of the garden cucumber, are slender, angular, branched, and beset with rough hairs; the leaves stand on long petioles, are of a triangular form, deeply and variously sinuated, obtuse, on the upper surface of a fine bright green, underneath whitish and rough; the flowers are yellow, solitary, and appear at the axillæ of the leaves. The calyx of the male flowers are bell-shaped, and divided at the brim into five tapering segments; the corolla is monopetalous, bell-shaped, and divided at the limb into five pointed segments; the filaments are three, two of which are bifid, they are all short, and inserted into the calyx; the anthers are linear, long, erect, and adhere together on the outer side. The calyx and corolla of the female flowers are similar to those of the male; the filaments have no anthers; the germen is large, inferior, supporting a short cylindrical style, finished with three thick, gibbous, bifid stigmas, which are bent outwardly; the fruit is a round berry, or pepo, the size of an orange, of a yellow colour, smooth when ripe, and divided into three cells, which abound with pulp of a white colour, enveloping many compressed ovate seeds.

The fruit of the colocynth is imported into this country in its dry state from Turkey; when ripe and yellow, it is pulled and dried in a stove. The fruit of a middling size is most esteemed; those that are large, and contain dark coloured or black seeds, are not good.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Dried colocynth is inodorous, but has an extremely bitter nauseous taste. The pulp (which is the part used medicinally) feels somewhat mucilaginous when chewed; and when long boiled, the decoction becomes gelatinous, so as scarcely to pass the strainer; it is of a deep golden yellow colour: the mucilage is soluble in cold water. Alcohol and all the acids coagulate the solution, which is precipitated by solutions of superacetate of lead, and nitrate of silver. Solution of ammonia dissolves the mucilage. The decoction, or infusion, of the pulp turns of a deep olive brown colour by the addition of sulphate of iron; sulphate of potass renders it greenish, and precipitates it. Both water and alcohol extract the virtues of colocynth, but the former more readily than the latter. Ether digested on the pulp deposits, when evaporated upon the surface of water, a white opaque bitter resin, and some extractive; from which the water acquires the bitter taste of the fruit, and precipitates solution of potass, nitrate of silver, and acetate of lead. According to M. Vauquelin, the alcoholic solution of colocynth yields, by evaporation, a brittle substance of a yellow colour, partially soluble in water, the residue consisting of a white filamentous mass, changing to yellow; this substance he names Colocyntine, and considers it to be the active principle of the colocynth.

Medical Properties and Uses. The pulp of colocynth is a very powerful and irritating cathartic. It was much used, both by the Greek and Arabian physicians, as a remedial agent in a variety of diseases requiring the aid of drastic cathartics. Both Hippocrates and Dioscorides were in the habit of employing this drug in dropsy, lethargy, and maniacal cases; but always with caution, from an apprehension of danger from the violence of its effects. In modern practice, it is seldom given alone, as it is apt, even in moderate doses, to produce violent gripings and bloody dejections. By long coction, it is rendered more mild,* and in the form of the extract of the London Pharmacopœia, it is a safe and efficacious cathartic; and when combined with submuriate of mercury, is one of the most common and efficient aperients in general use; it is also much used in combination with other aperients, to quicken their operation. When given in substance, it should be triturated with some gummy or farinaceous substance, which, without making any alteration in the colocynth itself, prevents its resinous particles from cohering and sticking upon the membranes of the intestines, so as to cause untoward effects. The dose of the pulp in substance is from three to ten grains.

Poisonous Effects of Colocynth. Orfila ranks colocynth among the acrid poisons, and relates several instances of its having produced fatal effects when applied to the cellular tissue, death having taken place twenty-four hours after its application.† A man swallowed three ounces of colocynth, with the hope of curing a gonorrhœa; a short time afterwards, he felt severe pains in the epigastrium, and vomited violently: at the expiration of two hours, he had copious alvine evacuations, the lower extremities became bent, his sight was obscured, and he heard with difficulty; delirium came on, succeeded by vertigo. He was given large quantities of milk, which produced vomiting, leeches were applied to the abdomen, and by degrees the violent symptoms subsided.[*] We are told by Fordyce,[†] that a woman was subject to colics for the space of thirty years, in consequence of having taken an infusion of the pulp of colocynth prepared with beer. When untoward symptoms arise from an over dose of this drug, the same mode of treatment should be pursued that we have recommended under the articles, Helleborus Niger, Daphne Mezereum, &c.

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* We are told by Thunberg, (vide Travels, vol. ii. p. 171) that at the Cape of Good Hope, the Colocynth is rendered so perfectly mild, by being properly pickled, that it is eaten both by the natives and colonists.

† Orfila's Toxicology, vol. i. p. 18.

Off.	The Pulp of the Fruit.
Off. Pp.	Extractum Colocynthidis, L.
	——————— Comp. L. E. D.
	Pilulæ Aloes cum Colocynthide, D.

◆

JUNIPERUS SABINA.

Common Savine.[‡]

Class Diœcia.—*Order* Monadelphia.

Nat. Ord. Coniferæ.

Gen. Char. Male. *Amentum* ovate. *Calyx* a scale. *Corolla* none. *Stamens* three.

Female. *Calyx* three-parted. *Petals* three. *Styles* three. *Berry* three-sided, irregular, with the tubercles of the calyx.

Spec. Char. *Leaves* opposite, erect, decurrent.

This species[§] of juniper is a native of the South of Europe and the Levant. It was first cultivated in Britain about the year

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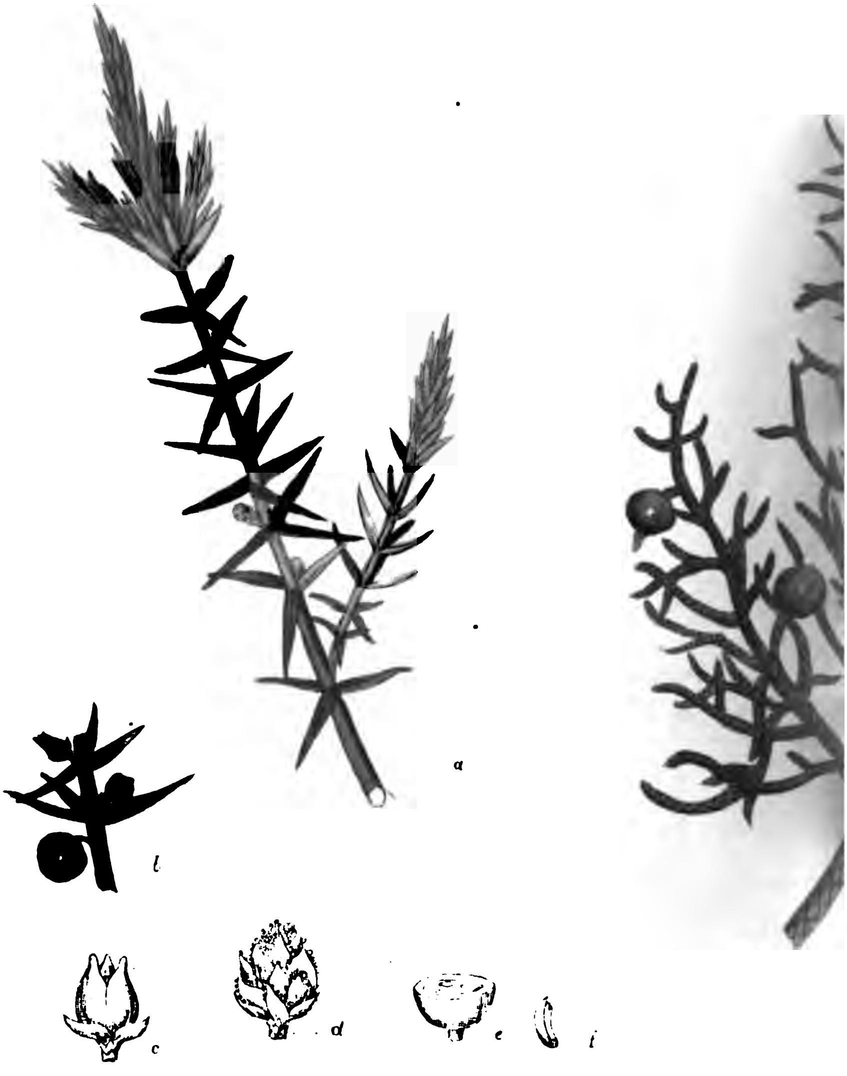
[*] We would observe that a large dose of colocynth is a popular remedy for the cure of gonorrhœa with the vulgar.—*Ed.*

[†] Fragmenta Chirurg. et Med. p. 66.

[‡] Fig. *h.* a male flower.

[§] Sixteen species of the genus Juniperus are cultivated in our botanic gardens, (Hort. Cant.) of which two species only are natives of Britain, viz. Juniperus Communis and Juniperus Alpina.—*Ed.*

. Ju.



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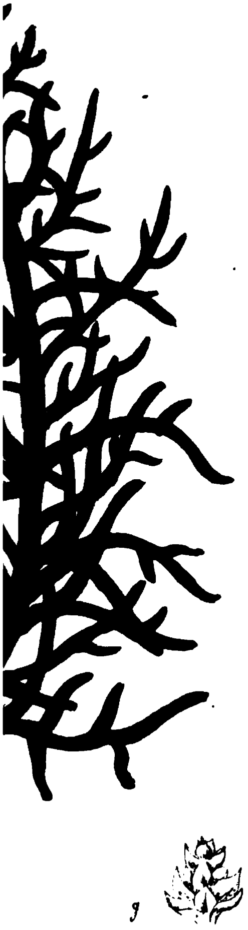

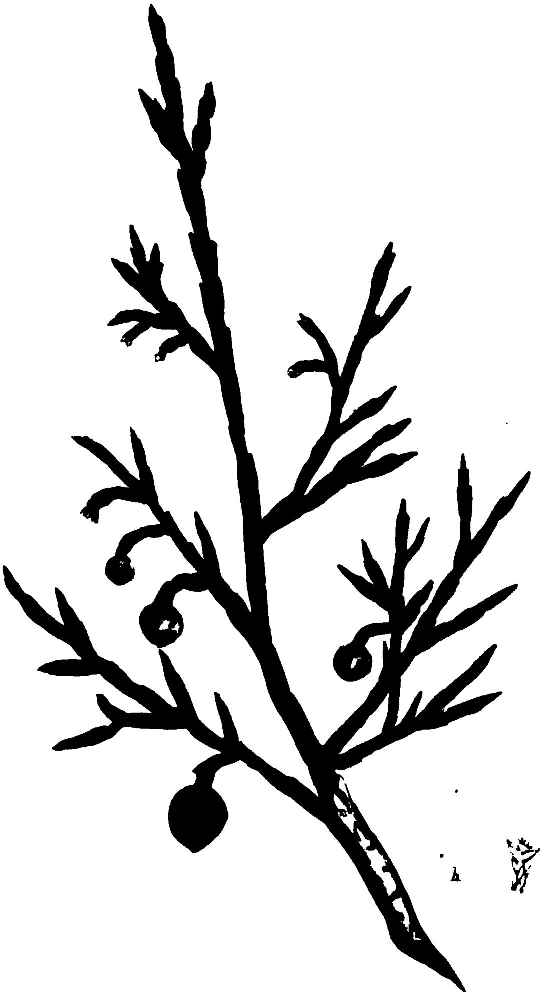

cia.

Sabina.

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1562,* and now forms an ornamental shrub in most of our gardens and shrubberies, flowering in May and June. This plant rises to the height of three or four feet, and sends off many branches, which are divided into numerous subdivisions. The stem and older branches are covered with a reddish brown bark, but the younger branches are wholly invested by the leaves; the leaves are very numerous, small, erect, firm, opposite, of a bright green colour, lie over one another, and terminate the branches in sharp points. The male and female flowers are on different plants: the male flowers stand in a conical catkin, which consists of a common spike-stalk, in which three opposite flowers are placed in a triple row, and a tenth flower at the end; at the base of each flower is a broad short scale, fixed laterally to a columnar pedicle; there is no corolla; the filaments, which are three, are in the terminal flowers only, they are tapering, united at the base, and support simple anthers, which, in the lateral flowers, stand sessile; the calyx of the female flowers is composed of three permanent scales, growing to the germen; the petals are three, stiff, sharp, and permanent; the germen supports three styles, supplied with simple stigmata; the fruit is a roundish fleshy berry, of a blackish purple colour when ripe, marked with tubercles, (which are the vestiges of the petals and calyx) containing three small, hard, irregular shaped seeds.

Sensible Qualities, &c. The leaves and tops of savine are of a strong (and to most people) disagreeable odour, and a hot, bitter, acrid taste: these qualities chiefly depend upon an essential oil, which is obtained in considerable quantity by distillation with water. Both water and alcohol extract the active principles of savine, but the latter more perfectly than the former. Decoctions of the leaves, freed from the volatile principle, by inspissation to the consistence of an extract, retain a considerable share of their pungency and warmth along with their bitterness, and have some degree of smell, but not resembling that of the plant itself. On inspissating the spirituous tincture, there remains an extract, consisting of two distinct substances, of which one is yellow, unctuous or oily, bitterish, and very pungent; the other black, resinous, tenacious, less pungent, and subastringent.† The odour of the essential oil is more powerful than the plant, and its taste very hot and acrid. Hoffmann obtained five ounces of this oil from thirty-two ounces of the herb.

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* Aiton's Hort. Kew.

† Lewis's Mat. Med.

Medical Properties and Uses. Savine is a powerful and active stimulant, and has been long celebrated as one of the most efficacious emmenagogues in the Materia Medica; it also possesses diaphoretic and anthelmintic properties. When employed as an emmenagogue it requires considerable caution, for when given in small doses it often fails to produce the desired effect; and in larger doses its heating and stimulating qualities often prove injurious, particularly if much fever or plethora be present,[*] unless its use be preceded by repeated bleedings, which depletion should invariably be resorted to in plethoric habits.[†] In those cases of amenorrhœa in which the circulation is languid, and unattended by fever, it appears to be best suited, and often proves efficacious. It has been given as a vermifuge with some success. It is now, however, seldom employed internally but as an emmenagogue; externally it is applied as a local stimulant, in the form of powder, to indolent and foul ulcers, syphilitic warts, and carious bones; or in the form of an ointment, to keep open issues and blisters. The expressed juice diluted, and also an infusion of the leaves, have been employed as a wash in cutaneous diseases, viz. tinea capitis, scabies, &c. but of its efficacy in these diseases, from our own practice, we cannot say much.

The leaves may be given in powder, in doses of from five to ten or fifteen grains, three times a day; and the essential oil, from one to two drops night and morning, either alone, or in combination with gentian, myrrh, steel, &c.

Off. The Leaves.
Off. Pp. Ceratum Sabinæ, L.
Extractum Sabinæ, D.
Oleum volatile Juniperi Sabinæ, L. D.

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[*] Dr. Cullen observes, that "savine is a very acrid and heating substance; and I have been often, upon account of these qualities, prevented from employing it in the quantity perhaps necessary to render it emmenagogue. I must own, however, that it shews a more powerful determination to the uterus than any other plant I have employed; but I have been frequently disappointed in this, and its heating qualities always require a great deal of caution."—Mat. Med. vol. ii. p. 366.

[†] Home's Clinical Exper. p. 387.

JUNIPERUS COMMUNIS.

Common Juniper.[*]

For *Class, Order, Nat. Ord.* and GEN. CHAR.
see JUNIPERUS SABINA.

SPEC. CHAR. *Leaves* in ternaries, expanding, acute, longer than the berry.

THIS species of Juniper is a native of Britain, growing on heaths and chalky hills, and flowering in May. Juniper is supposed to be the *ἄρχευθος* of the ancient Greeks, who distinguished it into two kinds. By Virgil the juniper tree was thought to be noxious, notwithstanding its extreme fragrance. The common juniper is also a native of Japan and Morocco: at the former place, it is known by the name of *thuya* and *arar*;[†] by the Japanese it is called *bjakusi*.[‡] In Morocco, the roofs and ceilings of the houses are made of the wood of this tree. The resinous substance known by the name of gum sandarach[§] is said to be the product of this tree; in warm climates it exudes through the crevices of the bark, or the perforations made by insects.

The common juniper is a low, branching, evergreen shrub, rising but a few feet in height; but when cultivated in a good soil it often rises to fifteen feet or more. The leaves (which are very numerous) stand in ternaries, are very narrow, entire, sharply pointed, channelled, of a glaucous colour on the upper surface, and placed sessile on the branches; the catkins are axillary, sessile, solitary, small, ovate, and furnished with braeteas; the male flowers are yellow at first, changing to brown, with a great abundance of pollen; the female flowers are smaller, and of a yellowish green, the parts of fructification resemble those of the Juniperus Sabina; the fruit is a globular berry of a blackish purple with a glaucous bloom; the berries remain two years on the tree before they are perfectly ripe, when they are filled with a blackish pulp, each containing three irregular, angular seeds.

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[*] Fig. *a.* represents a sprig of a male plant. *b.* A small cutting of a female plant, with the flower and fruit. *c.* A female flower magnified. *d.* A male catkin. *e.* Transverse section of the fruit. *f.* A seed.

[†] Jackson's Travels in Morocco, p. 78.

[‡] Flor. Japan, p. 264.

[§] This resin, when finely powdered, is also known by the name of pounce.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Juniper berries* are aromatic, with a peculiar odour; when chewed they are sweetish, somewhat bitter and pungent; the sweetness appears to reside in the juice, or soft pulpy part of the berry; the bitterness in the seeds; and the aromatic flavour in oily vesicles, spread throughout the substance of the pulp and the seeds. The fresh berries yield, on expression, a rich, sweet, honey-like, aromatic juice; but if previously powdered, so as to thoroughly break the seeds, it proves tart and bitter. They give out nearly all their active properties both to water and alcohol; the watery infusion, made with the berries slightly bruised, is limpid, yellowish, sweet and aromatic; that with the berries powdered is of a deeper colour and resinous. By distillation with water they yield a volatile terebinthinate oil, of a greenish colour, on which their virtues chiefly depend; the oil is obtained in the proportion of about one-fortieth of their weight; by long keeping it deposits a resinous sediment of a brown colour. The principal constituents of the berries appear to be mucus, saccharine matter, and volatile oil. The watery infusion made with the tops of juniper is slightly bitter, of a golden yellow colour, limpid, aromatic both in smell and taste; by the addition of sulphate of iron it changes to a brown colour.

MEDICAL PROPERTIES AND USES. Juniper berries have been long esteemed for their diuretic effects; they are also considered cordial, carminative and diaphoretic. They have been chiefly employed in hydropic affections, but notwithstanding we have various relations of their good effects in dropsical cases by Hoffmann, Boerhaave, Baron Van Swieten, and others, they cannot be depended upon alone for the cure: but the watery infusion often proves an efficacious adjunct, and also an agreeable vehicle, for more powerful diuretics, as the squill, foxglove, &c. Juniper has also been recommended in uterine obstructions, nephritic cases, scurvy, and cutaneous diseases; and it is asserted by Rosenstein, that a strong decoction of the berries soon clears the hands in scabies. As the virtues of the berries chiefly depend upon the essential oil which they contain, and as this also resides in the wood and tops, the latter are said to have been employed with equal advantage. We are told by Linnæus, that the Laplanders drink an infusion of the juniper berries as we do tea, and that the Swedes prepare a beer from them, which is greatly esteemed for its diuretic and antiscorbutic qualities.[*] Juniper berries are seldom given in substance, but may be taken to the extent of one drachm for a dose; the watery infusion appears to be the most commodious, as well as the most efficacious mode of exhibiting this drug; two or three ounces of the berries bruised, or a handful of the tops to one pint of boiling water, forms an infusion of a proper strength, of which, the dose may be two or three ounces once in four or six hours. The essential oil, in doses of from two to five drops, is found to be an active and stimulating medicine, which may be taken upon a lump of sugar, or combined with any other proper vehicle.

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* The markets are chiefly supplied with berries from Holland, Germany, and Italy; the Italian are generally preferred on account of the fine bloom with which they are covered, giving them a fresher appearance.

Off. The Berries and Tops.
Off. Pp. Oleum Juniperi, L. E. D.
Spiritus Juniperi Compositus, L. E. D.

◆

JUNIPERUS LYCIA.

Lycian Juniper, or Cedar.[†]

For *Class, Order, Nat. Ord.* and GEN. CHAR.
See JUNIPERUS SABINA.

SPEC. CHAR. *Leaves* three-fold, imbricated, ovate, obtuse.

THIS species of Juniper is the *Λιϐανος* of Theophrastus and Dioscorides; it is a native of the South of Europe, and found in many parts of Spain, Italy, and the South of France. It was first cultivated in England, about the year 1759.

The stem of this tree rises but a few feet in height, and sends off many erect branches, which are covered with a brown bark; the leaves are small, round, blunt, variously divided, and every where imbricated with small close scales; the flowers are male and female, on different plants, and accord with the description which we have already given of the Juniperus Sabina, to which we refer our readers; the berries are larger than the fruit of either of the other species described, and when ripe are of a dark brown colour.

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[*] The diuretic properties of Hollands depend upon the oil of juniper with which it is combined; English gin we are told is chiefly flavoured by oil of turpentine; certainly not so agreeable to the palate, but equally diuretic in its effects. *Ed.*

[†] Fig. *k.* represents a male catkin.

This tree was supposed by Linnæus to produce the gum known in commerce under the name of Olibanum; and the British Colleges, on his authority, have referred the production of the gum to this plant; but this opinion appears to be erroneous, for the French botanists deny that this tree yields the olibanum;* and what is not a little remarkable is, that although the gum olibanum was so much used in the early ages as incense in sacrifices, and in more modern times, in the ceremonies of the Greek and Roman Churches, yet both ancient and modern writers have differed in regard to the plant yielding it. Mr. Colebrooke, we think, has satisfactorily ascertained that the gum olibanum of commerce is not yielded by this tree, but that it is the produce of the Boswellia Serrata of Roxburgh; we shall, therefore, refer our readers for a description of the gum olibanum and its uses to our next article.

◆

BOSWELLIA SERRATA.

Serrated Boswellia, or Gum Olibanum Tree.†

Class DECANDRIA.—*Order* MONOGYNIA.

GEN. CHAR. *Calyx* beneath, five-toothed. *Corolla* five petals. *Nectary* a crenulated fleshy cup, surrounding the lower part of the germ, with the stamens inserted on the outside. *Capsule* three-sided, three-valved, three-celled. *Seeds* solitary, membranous, winged.

SPEC. CHAR. *Leaves* pinnate. *Leaflets* obtuse, obtusely serrated, villous. *Petals* ovate.

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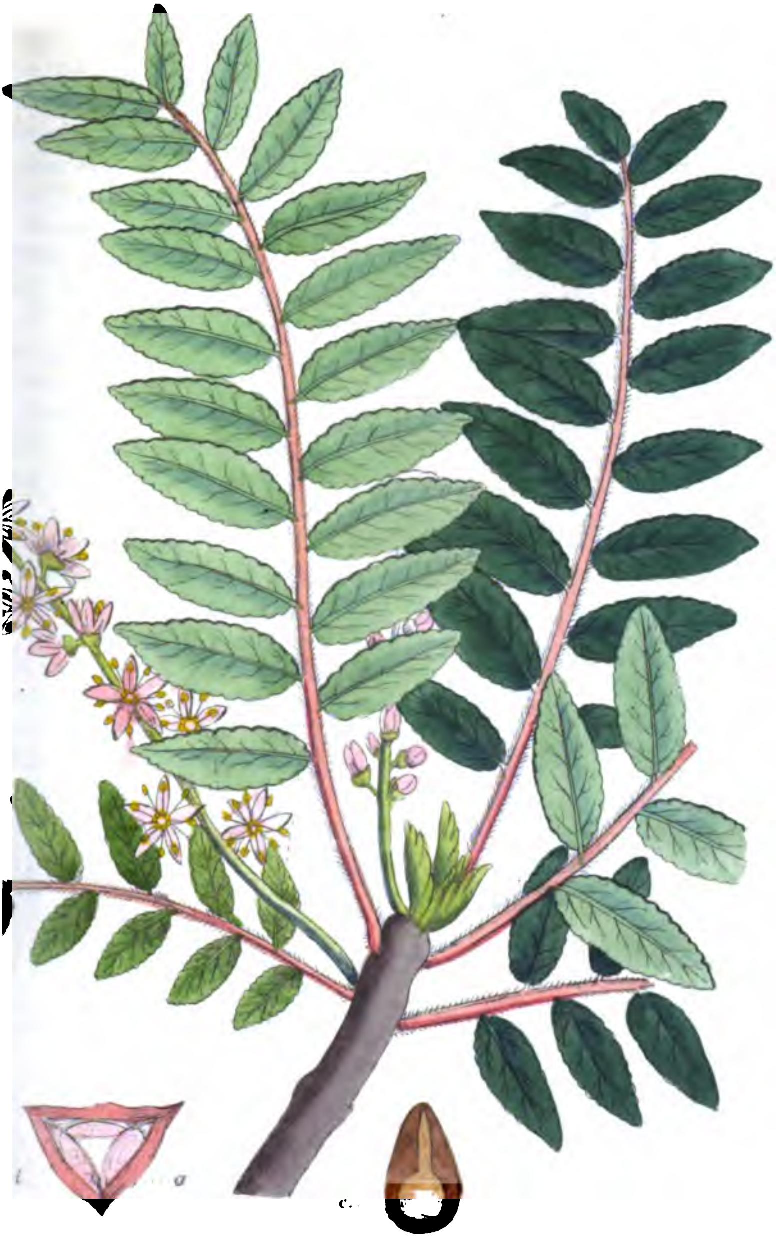
* This opinion of the French botanists, applies to the trees which are natives of the French soil.

† Fig. *a.* transverse section of the capsule. *b.* The capsule. *c.* A seed magnified.



ithog.

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Boswellia serrata.

The Boswellia Serrata is a native of the mountainous parts of India. We are told by Mr. Colebrooke that on the route by which he travelled to Barar in the year 1798 he frequently met with this tree in the forests between the Sōne and Nāgpūr.

This is a large tree; the foliage is crowded at the extremities of the branches; the leaves are impari-pinnate, consisting of ten pairs of sessile leaflets, each about an inch, or an inch and a half in length, obliquely ovate, oblong, obtuse, serrated, villous, and supported upon short downy petioles; the flowers, which are numerous, are produced in axillary racemes, shorter than the leaves, and accompanied by minute bracteas; the calyx is monophyllous, five-toothed,* and downy; the corolla is composed of five oblong spreading petals, of a pale pinkish colour, externally downy; the nectary is a fleshy, crenulate, coloured cup, adhering to the calyx; the ten stamens are alternately shorter, and support oblong anthers; the pistillum consists of an ovate germen, cylindrical style, and trilobate stigma; the capsule is smooth, three-sided, trilocular, three-celled, and three-valved, each cell containing one perfect seed only, which is broad, cordate, and winged.

The gum which exudes from this tree was noticed by Mr. D. Turnbull (surgeon to the Residency at Nāgpūr) who accompanied Mr. Colebrooke: the former gentleman judged it to be Olibanum, and so did several intelligent natives; but, says Mr. Colebrook, the notion prevalent among botanists that Olibanum is the produce of a species of juniper,† left room for doubt. I now learn from Mr. Turnbull, that since his return to his station at Mirzāpūr, he has procured considerable quantities of the gum of this tree, which he has sent to Europe at different times; first without assigning the name of Olibanum, and more lately under that designation. It was in England recognized for Olibanum, though offered for sale as a different gum: and annual consignments of it have been since regularly sold at the East India Company's sales.[*]

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* The fructification is remarkably diversified on the same plant. I have found, even on the same raceme, flowers in which the teeth or lobes of the calyx varied from four to ten; the number was generally five, sometimes six, rarely seven, more rarely four, and very rarely 10; petals as many as divisions of the calyx; stamens twice as many; capsule generally three-sided, sometimes four, rarely five-sided, with as many cells and as many valves; seeds generally solitary: the dissection of the germen does indeed exhibit a few in each cell, but only one is usually matured.—Dr. Roxburgh's Description, Asiatic Researches, vol. ix. p. 380.

† In our account of the Juniperus Lycia we noticed the prevailing opinions on this subject.—*Ed.*

SENSIBLE AND CHEMICAL PROPERTIES, &c. Olibanum is a transparent, brittle substance, of a pale yellow or reddish colour. It consists of grains of different sizes, from that of a pea to a chesnut,[†] and is generally covered with a whitish powder, produced by the friction of the grains against each other. It has a peculiar aromatic odour when burnt, and a slightly bitter and somewhat pungent taste. It is not fusible, but inflammable, burns brilliantly with an agreeable smell, and leaves a whitish ash, composed of sulphate, carbonate and phosphate of lime, with muriate and carbonate of potass. Neumann got from 480 grains, 346 alcoholic, and 125 watery extract; and inversely, 200 watery, and 273 alcoholic. Olibanum forms a milky fluid when triturated with water, and a transparent solution with alcohol. When distilled alone it affords a small portion of a volatile oil, but distilled either with water or spirit, no oil comes over. Ether dissolves nearly three-fourths, and when evaporated on water leaves a very pure transparent resin, while the part undissolved becomes white and opaque, and the greater part of it is soluble in water, forming a milky solution. According to the analysis of Braconnot, 100 parts of olibanum contain 8 parts of a fragrant volatile oil, (which resembles oil of lemons both in odour and colour), 56 of resin, 30 of gum, and 5.2 of a matter resembling gum, but insoluble in water or alcohol.

MEDICAL PROPERTIES AND USES. Olibanum is stimulant and diaphoretic, and was formerly considered of much efficacy in disorders of the head and chest; in coughs, hæmoptysis, and in various fluxes, both intestinal and uterine; it was also much employed externally as a vulnerary. Both Geoffroy and Riverius speak of the great efficacy they experienced from its use in pleurisies, especially after venesection. It is however now seldom prescribed for internal use, but as a perfume, it is sometimes employed to fumigate sick apartments.

Off. Olibanum.

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[*] Asiatic Researches, vol. ix. p. 381.

[†] Olibanum has received different appellations, according to its different appearances: the single tears or grains are simply termed Olibanum; when two are joined together, Masculum; and when two are very large, Femininum; the fine powder, which rubs off from the tears, Mica Thuris; and the coarser Manna Thuris.

DOLICHOS PRURIENS.

Cowhage.[*]

RADCLIFFE

Class **DIADELPHIA.**—*Order* **DECANDRIA.**

Nat. Ord. **PAPILIONACÆ**, *Linn.* **LEGUMINOSÆ**, *Juss.*

GEN. CHAR. *At the base of the Standard,* two oblong, parallel scales, compressing the wings underneath.

SPEC. CHAR. Twining. *Legumes* racemed. *Peduncles* in ternaries.

THIS species of Dolichos[†] is the Carara Pruritus of Rumphius. It is a perennial climbing plant, a native of America, and the East and West Indies, flowering in September and October. In Bengal, where it is named Cadjuct, it flowers from September to March. According to Ray, it was cultivated in England by Mr. Charles Hatton, about the year 1680. It requires the heat of a stove, and seldom produces perfect flowers in this country.

The root is fibrous; the stem herbaceous, cylindrical, hairy, climbing, branching, rising to a considerable height; the branches twisting round the neighbouring trees for support; the leaves are ternate, from six to fourteen inches long, and stand upon footstalks, placed alternately at the distance of a foot from each other; the leaflets are entire, ovate, pointed, smooth on the upper surface, and hairy beneath: the central leaflet is of a rhomboidal form, the two lateral ones are oblique, and somewhat larger than the central; the flowers are large, of a purple or deep violet colour, and placed mostly in ternaries upon short peduncles, and form pendant spikes, which arise from the axillæ of the leaves; the calyx is bell-shaped, gibbous at the base, downy, divided into two lips, of which the upper is semi-ovate, and the under divided into three lance-shaped segments; the corolla is of the papilionaceous kind; the *vexillum* is roundish, entire, concave, obtuse, and double the length of the calyx; the two *alæ* are oblong, obtuse, concave, and twice the length of the vexillum; the *carina* is scythe-shaped, the length of the alæ, compressed, and furnished with a short concave spur at each side of the apex; the filaments are ten, nine of which are united at the base: they are alternately long and short, the former are four times broader than the latter, and furnished with incumbent anthers; the anthers of the latter are placed vertically; the germen is oblong, villous, and supports a slender style, about the length of the filaments, terminated by a small orbicular stigma; the fruit is a coriaceous pod, about four or five inches long, curved like the letter S, thickly covered with brown bristly hairs, and containing from four to six ovate, compressed seeds, of a brownish colour.

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[*] Fig. *a.* the pistillum. *b.* The stamens. *c.* The fruit.

[†] The genus Dolichos comprises upwards of thirty species, mostly natives of both the Indies.—*Ed.*

The natives of India use the pods of this plant as an article of food, and the Tamool doctors employ the roots medicinally.* The pods we receive are chiefly imported from the West Indies, and come to us in their dry state; the sharp hairs with which they are thickly beset, readily penetrate the skin if incautiously handled, and occasions the most intolerable itching. The sharp hairs, or spiculæ of the pods, are the only part of the plant medicinally employed in this country. They have no particular sensible property, having neither taste nor odour.

MEDICAL PROPERTIES AND USES. The spiculæ of the pods operate as a mechanical anthelmintic, and have been long employed by the West Indian practitioners as a safe and efficacious vermifuge, especially for expelling the round worm (Lumbricus Teres). The best mode of exhibiting this medicine is, to mix the spiculæ, or hairs, with syrup, or molasses, to the consistence of a thin electuary, of which a tea-spoonful to a child of two or three years old, and double the quantity to an adult, is a proper dose; this may be given in the morning fasting, and repeated the two succeeding mornings, after which a dose of some gentle cathartic, almost invariably brings away a number of worms. Not only the round worm, but every kind known to infest the primæ viæ, has been expelled by this medicine. Cowhage appears to act purely mechanically, by piercing the worms, and sticking in their bodies, for a decoction or tincture of the spiculæ do not possess the smallest anthelmintic property.† In India, the Tamool practitioners prescribe an infusion of the roots in cholera morbus.

Off. The Hairs of the Dolichos pod.

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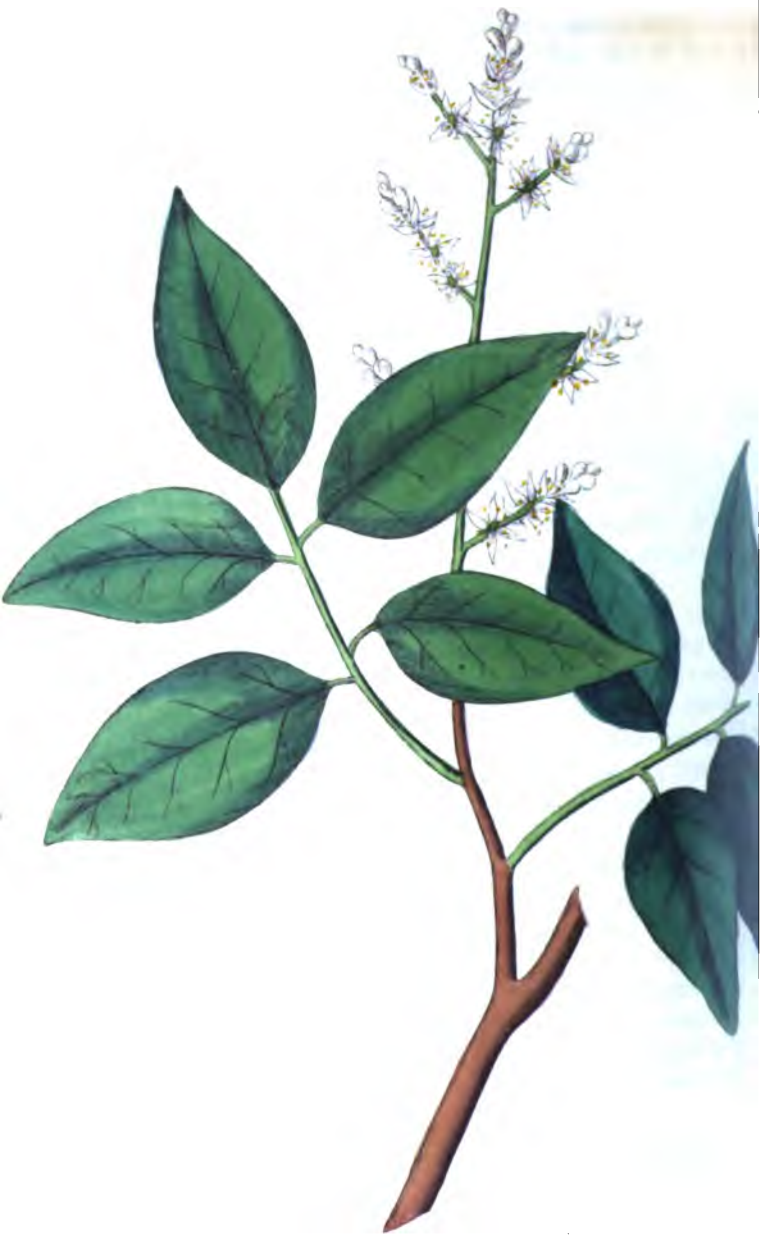
* Ainslie's Materia Indica, vol. i. p. 93.

† Murray's App. Med. vol. i. p. 144.



Copaifera Officinalis.

[illegible] by G. K. Madeley [illegible]

[illegible]

[illegible] and [illegible]

[illegible] in [illegible]

[illegible] and [illegible]

[illegible] of [illegible] con[illegible]

[illegible] with a rough [illegible] bark; the [illegible]

[illegible] narrower [illegible]

[illegible] white, and [illegible]

[illegible] the petals are [illegible]

[illegible] the petals, and [illegible]

[illegible] compressed, [illegible]

[illegible] The fruit is a [illegible]

[illegible] called Balsam of [illegible]

[illegible] near the base; its trunk [illegible]

[illegible] the balsam immediately [illegible]

[illegible] have been collected in the [illegible]

[illegible] This operation is performed two or three times [illegible] year. While flowing from the tree, this balsam is [illegible] it acquires a yellowish tinge, and becomes [illegible]

[illegible] the best balsam; that supplied by the young and [illegible]

[illegible]

COPAIFERA OFFICINALIS.

Copaiva Tree.

Class DECANDRIA.—*Order* MONOGYNIA.

Nat. Ord. DUMOSÆ, *Linn.* LEGUMINOSÆ, *Juss.*

GEN. CHAR. *Calyx* none. *Petals* four. *Legume* ovate. *Seed* one, with an ovate arillus.

THIS tall and elegant tree is a native of South America, particularly Brazil, and the Spanish West India Islands. It is said to grow in great abundance in the woods of Tolu, near Carthagena, and in those of Quito and Brazil.

The trunk of this tree rises to a considerable height, and divides into numerous branches at the top; both trunk and branches are covered with a rough brown bark; the leaves are large, pinnated, and consist of four pair of ovate, pointed, alternate leaflets, with a terminal one, each two or three inches long, entire, shining, veined, somewhat narrower on one side, and placed upon short footstalks; the flowers are white, and produced in terminal branched spikes; there is no calyx; the petals are four, spreading, oblong, acute and concave; the filaments are ten, slender, incurved, somewhat longer than the petals, and bear oblong incumbent anthers; the germen is roundish, compressed, and stands upon a short pedicle; the style is filiform, incurved, the length of the filaments, and furnished with an obtuse stigma. The fruit is an oval two-valved pod, containing a single egg-shaped seed, enveloped in a berried arillus. The liquid substance called Balsam of Copaiba, is obtained from this tree, by making incisions near the base of its trunk, into the heart of the wood, when the balsam immediately begins to flow; and at the proper season issues in such abundance, that from vigorous trees, twelve pounds have been collected in the course of three or four hours. This operation is performed two or three times in the same year. While flowing from the tree, this balsam is colourless; by age it acquires a yellowish tinge, and becomes thicker, but never becomes solid like most other resinous fluids. The older trees afford the best balsam; that supplied by the young and vigorous trees is crude and watery. The markets are chiefly supplied with this balsam from the Brazils; it comes to this country in casks, containing from one to two hundred weight of the balsam.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Copaiba balsam, when good and unadulterated,* has an agreeable smell, and a bitterish pungent taste; it is of a pale golden yellowish colour, perfectly transparent, and when fresh is of the consistence of oil; it is said to become solid, dry and brittle, if exposed with an extended surface for a considerable length of time. It is insoluble in water, but entirely so in rectified spirit, especially if the menstruum be previously alkalized, when the solution has a very fragrant smell; it is also soluble in ether. The pure alkalies form with it saponaceous compounds, which are soluble in water, forming opaque milky mixtures. It also readily combines with the expressed oils, forming with them clear transparent mixtures.† United with sulphuric acid, it is converted into a brown bituminous mixture, which gives out a strong odour of sulphur. Nitric acid partially dissolves it, and renders it brown, and when exposed to a strong heat, the acid is decomposed, and nitrous fumes are copiously emitted. The acetic and muriatic acids scarcely affect it; when distilled with water, it yields nearly half its weight of a limpid essential oil; in a strong heat, without addition, it yields an empyreumatic brown red oil, an acidulous water, carbonic acid gas, and olefiant gas, but no benzoic acid; it is therefore not a balsam, but a turpentine, a combination of volatile oil and resin.

MEDICAL PROPERTIES AND USES. This balsam is diuretic, stimulant and gently purgative; in small doses it proves tonic. From its stimulating the urethra, it has been successfully used in gleets, and it is supposed to clean and heal ulcerations in the urinary passages. It has also been found very efficacious in fluor albus, and in sanious discharges from the uterus, particularly in those which frequently occur on the cessation of the catamenia. In hæmorrhoidal affections it affords considerable relief, in doses of twenty or thirty drops twice a day. It has been recommended in pulmonary

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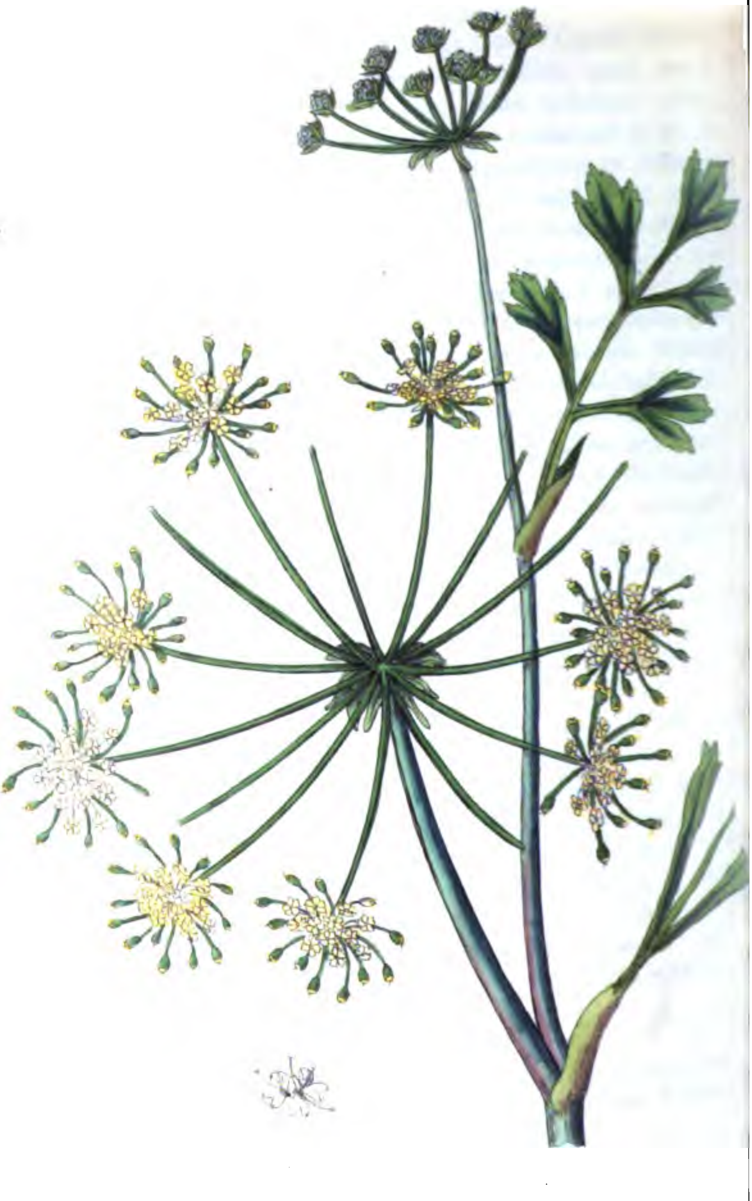
* We are told by Lewis, (Mat. Med. p. 132) that a thick, whitish, and almost opaque balsam, with a quantity of turbid watery liquor at the bottom, is sometimes found in the shops.

† We believe the Copaiba balsam which is met with in the retail shops, is very commonly adulterated with almond or olive oil. We are told by Buckolz, that if Copaiba balsam does not dissolve entirely in a mixture of four parts of alcohol and one of sulphuric ether, its adulteration may be inferred.



Bubon Galbanum

G. Spratt del.

Printed by G. E. Madeley.
Wellington S^t Strand.

[illegible] ts; but [illegible] bowels, it [illegible] could be [illegible] said to give [illegible] our, as the [illegible] to an [illegible] ns, [illegible] We are [illegible] attended with [illegible] of [illegible] na.* This [illegible] may be [illegible] of an emulsion, [illegible] which [illegible] thick mucilage of [illegible] gradually [illegible] may be conveniently taken [illegible] drops, twice or thrice a day.

Off. The [illegible]

◆

BUBON GALBANUM.

Lovage-leaved [illegible]

Class Pentandria.—*Order* Digynia.

Nat. Ord. Umbellatæ.

Gen. Char. *Fruit* ovate, striated, [illegible]

Spec. Char. *Leaflets* rhomboid, serrated, [illegible] *Upper part of the Stem* covered with a glaucous exudation.

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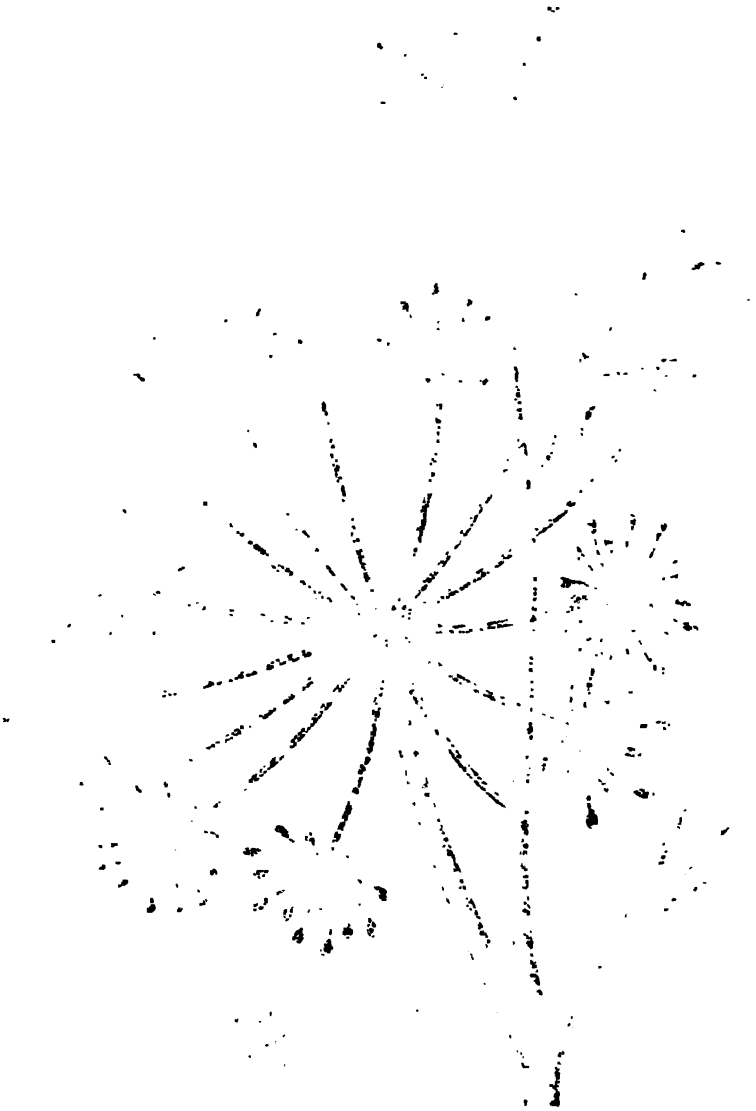
* Nouvelles de la Repub[illegible]

[illegible] a flower, magnified



Bubon Galbanum

complaints; but if this medicine can be administered with success in these disorders, it must be in the absence of fever, and when the excretion from the lungs is unattended with inflammatory diathesis. In large doses it is apt to excite inflammation of the kidneys, hence it should be avoided where ulceration of those organs is suspected. It is said to give the urine an intensely bitter taste, but not the violet odour, as the common turpentines do. Copaiba was formerly supposed to be an efficacious remedy in various other disorders, viz. coughs, scorbutic diseases, dysenteries, nephritic complaints, and dropsy. We are told by Mutis, that a woman, who had been many years affected with dropsy, was cured in forty days, by taking this balsam; the dose of which she increased to a spoonful night and morning.[*] This medicine may be most conveniently taken in the form of an emulsion, into which it may be brought by triturating it with almonds, thick mucilage of gum arabic, or yolk of an egg, and then gradually adding a proper quantity of soft or distilled water; or it may be conveniently taken on sugar. The dose is from ten to sixty drops, twice or thrice a day.

Off. The Balsam or Liquid Resin.

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BUBON GALBANUM.

Lovage-leaved Bubon.[†]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ.

GEN. CHAR. *Fruit* ovate, striated, villose.

SPEC. CHAR. *Leaflets* rhombic, serrated, smooth. *Umbels* few. *Upper part of the Stem* covered with a glaucous exudation.

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[*] Nouvelles de la Republique des Lettres et des Arts, 1786, n. 33, p. 374.

[†] Fig. *a*, a flower, magnified.

THIS species of Bubon is a native of Africa, about the Cape of Good Hope; it is a perennial plant, flowering in June and July. It was first introduced into Britain by Gerarde in 1596.

This plant rises to the height of eight or twelve feet; the lower part of the stem is woody, and covered with a purplish bark, the upper part is round, jointed, branching, leafy, and covered with a glaucous-coloured exudation; the lower leaves are tripinnated, and stand upon vaginal footstalks: the upper ones are trilobed, and irregularly serrated, but some near the base are entire, and others upon the upper branches are somewhat wedge-shaped; the principal umbel terminates the stem, and is large, plano-convex, and composed of numerous radii; the lateral umbels are few, and grow upon slender pendant branches: the involucres are composed of twelve narrow, lancet-shaped, membranous, whitish leaflets, which are bent outwards; the involucels of six leaflets only; the flowers are all fertile, first open at the circumference of the umbel, and followed successively by those towards the centre; the corolla is composed of five petals of a greenish yellow colour, and have their points turned inwards; the stamens are longer than the petals, and support yellow anthers; the germen is round, and narrow at the base; the two styles are short and tapering; the seeds are two, of a brownish colour, oblong, channelled, smooth, and have a thin membranous border.

The officinal gum Galbanum of the shops is supposed to be the produce of the plant we have described; but it is very probable that the Galbanum, as imported, is obtained from different species of Bubon, of which there are several. The gum is obtained partly by its spontaneous exudation from the joints of the stem, but more generally, and in greater abundance, by making an incision in the stalk a few inches above the root, from which it immediately issues, and soon becomes sufficiently concrete to be gathered. The gum is brought to this country from Turkey and the East Indies, in separate tears about the size of a hazel-nut, or in softish ductile masses of a pale brownish yellow colour, intermixed with distinct white hard tears; it is also often mixed with stalks and other impurities. The separate tears are considered the best, and the masses when good should be of a brownish yellow colour, of the consistence of wax, softening by heat, and becoming brittle by cold.

SENSIBLE AND CHEMICAL QUALITIES, &c. Galbanum has a strong unpleasant odour, and a warm, bitterish, acrid taste. When triturated with water it forms a milky liquor, but does not perfectly dissolve, for on standing for a short time a considerable proportion of the gum is precipitated. Both wine and vinegar dissolve nearly the same quantity as water. Rectified spirit takes up about one-fifth of its weight, and the tincture is of a golden yellow colour. A mixture of two parts of alcohol and one of water dissolves nearly all but the impurities. In distillation with water Galbanum yields a considerable quantity of volatile oil;* which is of a blue colour at first, but changes by exposure to the atmosphere to a greenish yellow. Sulphuric ether takes up a large proportion of Galbanum: the tincture is of a bright golden colour, which, when evaporated, leaves a tenaceous, yellow coloured resin, that retains the sensible qualities of the gum. By the addition of oxymuriatic acid to the solution of Galbanum, an insoluble matter is thrown down, which is probably oxidized extractive.

MEDICAL PROPERTIES AND USES. Galbanum is considered expectorant, deobstruent, and antispasmodic, and may be said to hold a middle rank (with regard to its virtues,) between assafœtida and ammoniacum. It is said to promote uterine evacuations, hence it has been found particularly useful in hysteria, when dependent upon obstructed menstruation; it is also useful in correcting various secretions, but as an expectorant it is not equal to assafœtida. Externally Galbanum has been applied as a warm stimulating plaster, and also to expedite the suppuration of indolent tumours. It is exhibited in the form of pills or emulsion, in doses of from ten grains to sixty.

Off. Galbanum Gum-resin.
Off. Pp. Emplastrum Galbani, D.
——————— Compositum, L.
Pilulæ Galbani Compositum, L.
Tinctura Galbani, D.

Galbanum also forms one of the ingredients in several other compound preparations of the British colleges.

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* Half its weight, (Thomson's Chemistry, 4th edit. v. i. p. 42.) but according to Neumann, one lb. of galbanum yields about six drachms of oil, besides what remained dissolved in the water. We presume the quantity of oil must, in a great measure, depend upon the quality of the gum.—*Ed.*

CASSIA FISTULA.

Purging Cassia.[*]

Class Decandria.—*Order* Monogynia.

Nat. Ord. Lomentaceæ, *Linn.* Leguminoseæ, *Juss.*

Gen. Char. *Calyx* five-leaved. *Petals* five. *Anthers* three superior, barren; the three lower ones beaked. *Lomentum.*

Spec. Char. *Leaves* pinnate. *Pinnæ* from four to six pairs, ovate, pointed, smooth. *Petioles* without glands.

This species of cassia is a native of Egypt, the East and West Indies, and Ceylon, flowering in June and July. It appears to have been long known in the Eastern countries; both Avicenna and Serapion make mention of it, and Prosper Alpinus notices the fragrance of its flowers; its use is supposed to have been discovered by the Arabian physicians.[†] This tree was introduced into England about the year 1731, and cultivated in the Botanic Garden at Chelsea by Mr. P. Miller.

The stem of this tree rises to forty or more feet in height, producing many spreading branches towards the top: both trunk and branches are covered with a brownish, soft cineritious bark; the leaves are composed of from four to six pairs of ovate, pointed, undulated nerved, pinnæ, which are of a pale green colour, and stand upon short peduncles; the flowers are of a golden yellow colour, are produced on long terminal pendant spikes, and stand upon long peduncles; the calyx consists of five oblong, blunt, crenulated leaves, of a pale greenish colour; the corolla is composed of five unequal, undulated, and spreading petals; the filaments are ten, of these the three undermost are long and incurved, the remaining seven exhibit only the large anthers, three of which are rostrated, or open at the extremity, like the beak of a bird; the

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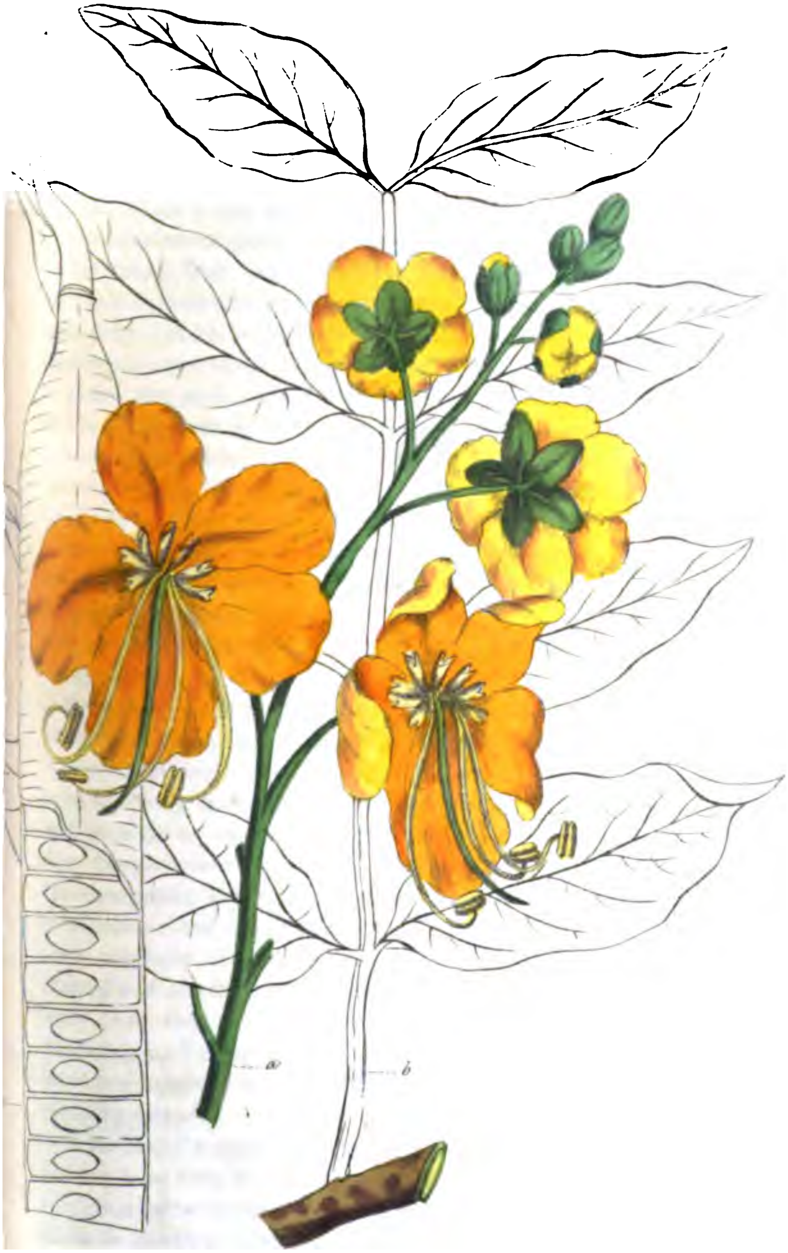
[*] Fig. *a*, the top part of a spike of blossoms, *b*. A leaf. *c*. A portion of the pod.

[†] Cassia Fistula is supposed to be the Eiarxamber of Serapion, and the Chaiarlander of Avicenna.



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Cassia Fistula.

germen is round, curved inwardly, without any apparent style, and terminated by a simple stigma; the fruit is a cylindrical pod, from one to two feet in length, about the thickness of the human thumb: at first soft and green, changing to a dark brown or blackish colour, divided transversely into numerous cells, in each of which is contained a smooth, oval, compressed, yellowish, shining seed, imbedded in a black pulpy matter.

The best cassia pods are brought from the East Indies, and are distinguished from the West India fruit by their smoothness, and smaller size, and also, by the blackness and more grateful flavour of their pulp, (which is the only part used medicinally); hence they are greatly preferred to the latter. In Egypt, we are told, it is the practice to gather the pods before they arrive at a perfect state of maturity, and to place them in a house, from which the external air is excluded as much as possible: the pods are laid in strata of half a foot in depth, between which palm leaves are interposed, to prepare them for keeping; a sort of fermentation is produced by sprinkling them with water, which process is performed for two successive days, they are then suffered to remain for forty days, when the pods become sufficiently prepared for keeping. Those pods are considered the best which are the heaviest, and in which the seeds do not rattle on being shaken.

Sensible and Chemical Properties, &c. The pulp of cassia has a weak, sickly odour, and a sweet mucilaginous taste; it is of a viscid consistence, and of a bright shining black colour, and turns sour very speedily in warm weather. It is soluble in water, and partially so in alcohol and ether; the watery infusion is of a deep brown colour, and yields a precipitate of a yellow colour by the oxymuriatic acid; alcohol and acetate of lead also throw down precipitates; but the infusion is not altered by nut galls, nitrate of silver, sulphate of iron, nor by the nitric or sulphuric acids. The ethereal and alcoholic tinctures are not affected by the addition of water, bnt they leave a small portion of resin on evaporation. According to Vauquelin, the components of the pulp of cassia are, extractive, sugar, mucus, gelatin, a small portion of resin, and some colouring matter.

Medical Properties and Uses. Cassia pulp is aperient, and has been long in use as a gentle laxative for children; for whom it appears to be better adapted than for adults, who require large doses to produce any effect. When taken in small quantities it operates without occasioning any uneasiness, or griping; but when taken in doses sufficient for persons of strong habits it is apt to occasion flatulence and nausea. It is now however rarely given but in conjunction with some more powerful laxative, as neutral salts, senna, or jalap: Its purgative quality is said to be remarkably promoted by manna. We are of opinion with the late Dr. Cullen,[*] that the pulp of prunes might be employed with equally good effects as this expensive drug. We are told by Sennertus, Boerhaave, Lewis, and others, that by the repeated use of cassia the urine becomes of a blackish green colour; but this effect is denied by Bergius and Gmelin, the former of whom relates an instance of a person having taken an ounce on three successive mornings, without producing the least change in his urine.[†]

Off. The Pulp.
Off. Pp. Confectio Cassiæ, L. E. D.

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TEUCRIUM MARUM.

Marum Germander, or Syrian Herb Mastic.[‡]

Class DIDYNAMIA.—*Order* GYMNOSPERMIA.

Nat. Ord. VERTICILLATÆ, *Linn.* LABIATÆ, *Juss.*

GEN. CHAR. *Corolla* no upper lip, but a fissure in place of it. *Stamens* protruded.

SPEC. CHAR. *Leaves* ovate, pointed, entire, petioled, downy beneath. *Flowers* in racemes, one ranked.

THIS species of germander[§] is a native of Syria, Egypt, and Spain. It was first cultivated in Britain by Parkinson, in the year

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[*] Vide Cullen, M. M. vol. ii. p. 506.

[†] Bergius Mat. Med. p. 341.

[‡] Fig. *a.* the flower, somewhat magnified. *b.* The calyx.

[§] Forty-two species of the genus Teucrium, natives of both warm and cold climates, are cultivated in our botanic gardens, many of which are hardy and thrive in the open ground, but others require the greenhouse or stove.

1640, and is now to be met with in many of our greenhouses. It is a perennial plant, flowering from July to September. The root is long, woody, and divides into many fibrous branches. In our gardens it rises about a foot in height, but in its native clime it rises to the height of three or four feet; the stalks are numerous, slender, woolly and branched; the leaves are ovate, pointed, entire, opposite, above of a bright green, beneath hoary, and stand upon slender footstalks; the leaves towards the lower part of the stems are often nearly three-lobed, and the petioles are longer than those on the upper part and branches; the flowers are produced in loose terminal spikes, and stand on the same side in pairs, on short peduncles; the corolla is of a pale red or purple colour, and consists of a short, curved, cylindrical tube, which divides at the limb into two lips, the upper of which is short, erect, and divided to the base; the calyx is tubular, whitish, woolly, and divided into five short pointed segments; the filaments are two long and two short, all of which are slender, white, and support simple anthers; the germen is quadrifid, and supports a slender style, with a bifid stigma; the seeds are four, of a brown colour, and lodged within the calyx. This plant is supposed to be the Μάρον of Dioscorides; it is said that cats are remarkably fond of it; hence it has been long known by the name of cat thyme.*

Sensible Qualities, &c. The leaves and younger branches of Marum when recent, on being rubbed between the fingers, emit a volatile aromatic smell, which readily excites sneezing. Their taste is acrid, bitter, and pungent, and on being chewed fill the mouth with a durable glowing warmth. These qualities depend upon a volatile oil which may be obtained by distillation with water; by drying, this plant loses very little of its pungency; it gives out its virtues both to water and spirit, but most perfectly to the latter. The essential oil is highly pungent.

Medical Properties and Uses. The leaves of Marum were formerly supposed to possess very active powers as a stimulant aromatic, deobstruent, and diuretic, and instances of its good effects in a variety of diseases, viz. apoplexy, asthma, and other disorders of the lungs, suppression of the menses, debility of the nervous system, &c. are recorded by Linnæus, Wedelius, Rosenstein, and others. In modern practice (at least in this country,) it is seldom employed but as an errhine, for which purpose it was highly extolled by Boerhaave* and Hermann; and it is recommended as preferable, in some instances, to tobacco, as it possesses no narcotic property: it forms a component in most cephalic powders. The dose of the herb, in powder, may be from twenty to forty grains, in any suitable vehicle.

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* See Jac. Antonii Cortusi Catalogus Horti Patavini, anno 1591.

Off. The Herb.
Off. Pp. Pulvis Asari Compositus, E. D.

TEUCRIUM CHAMŒDRYS.

Common or Wall Germander.

For *Class*, *Order*, *Nat. Ord.* and GEN. CHAR.
See preceding article.

SPEC. CHAR. *Leaves* cruciform-ovate, lacinated, crenate, petiolate, hairy. *Flowers* three-fold. *Stems* hairy, procumbent.

THIS species of Teucrium is a native of Britain, flowering in June and July, and found growing on old walls and ruins. According to Sir James Smith, on the walls of Norwich, near Magdalen Gate, and Winchelsea Castle.

The root is perennial, creeping, branched, and fibrous; the stalk rises about a foot in height, branched, round, leafy, and hairy; the leaves stand in pairs, on short footstalks, sub-ovate, irregularly notched, veined, and hairy; the flowers are axiliary; the calyx is rough, and cut into five pointed segments; the corolla is of a purple colour, bilabiate, with the upper lip short, and cut in the middle, the lower separating in spreading lobes, of which the middle one is the largest and of a roundish form; the filaments are slender, white, and furnished with simple anthers; the germen is four-parted; style filiform, supporting a bifid stigma; seeds four, enclosed in the calyx.

SENSIBLE QUALITIES, &c. The leaves and tops of germander

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[*] Hist. Plant. Hort. L. B. p. 262.

have a weak aromatic odour, which is much diminished, but not totally dissipated by drying: their taste is slightly bitter. Both water and alcohol extract their active principles, but the former most completely.

MEDICAL PROPERTIES AND USES. Wall germander has been esteemed chiefly as a mild aperient and coroborant. It has also been accounted diuretic and emmenagogue: hence it has been recommended, and said to prove efficacious, in uterine obstructions, and also in intermittent fevers, gout,* and rheumatism. Whatever might have been the good effects produced by this plant, it is now, however, seldom or never employed. According to Murray, the virtues of this plant very nearly resemble those of horehound, and may be employed with equal advantage; the dose of the dried herb is from one scruple to a drachm, taken three or four times in the day.

Off. The Herb.

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SMILAX SARSAPARILLA.

Sarsaparilla.†

Class DIŒCIA.—*Order* HEXANDRIA.

Nat. Ord. SARMENTACEÆ, *Linn.* ASPARAGI, *Juss.*

GEN. CHAR. Male. *Calyx* six-leaved. *Corolla* none.
Female. *Calyx* six-leaved. *Corolla* none. *Styles* three. *Berry* three-celled. *Seeds* two.

SPEC. CHAR. *Stem* angled, prickly. *Leaves* unarmed, ovate, pointed, three-nerved.

THIS species of Smilax is a perennial climbing plant, flowering in July and August. According to Mr. Aiton, it was first cultivated in this country by Mr. Foster, in 1691.[*] It is a native of South America and Virginia, and grows wild on the borders of a lake on the north of the Cerra Unturan, near Esmeralda. We are told by Dr. Hancock, that "The Sarsa of the Rio Negro, which comes by way of Angustura, or of Parsa, is the best."[†] It appears that the roots of several species of Smilax are collected, almost indiscriminately, by the natives, who are appointed to dig the genuine roots, for supplying the markets,[‡] and this accounts for the inefficacy which is so often attributed to this drug.

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* Charles V. is said to have been cured of a severe attack of gout by a vinous decoction of this plant taken for sixty successive days. It also formed one of the ingredients in the celebrated Portland powder for the cure of gout.

† Fig. *a.* the pistillum. *b.* A stamen. *c.* The fruit.

The root of this plant divides into many pedicels, which are somewhat thicker than a goose quill, straight, externally brown, internally white, and three or four feet in length; the stalks are shrubby, long, slender, scandent or trailing, and beset with spines; the leaves are ovate, pointed, three-nerved, petiolate, and stand alternately, with long tendrils at the base; the flowers are male and female upon different plants, and usually stand three or four together upon a common peduncle; the calyx of the male flower is bell-shaped, divided into six oblong, spreading segments, which are reflexed at their points; the filaments are six, supporting oblong anthers; the calyx of the female flower is similar to that of the male; the germen is ovate, and supports three minute styles, furnished with oblong reflexed, hairy stigmas; the fruit is a round three-celled berry, containing two globular seeds.

The roots of sarsaparilla[§] are imported into this country in their dried state, from the Spanish West Indies, packed in bales: it has also been imported from Jamaica; and we are told by Humboldt, that nearly 6000 quintals are annually exported from Vera Cruz.[||] In the London market it is known by the names of Honduras, Vera Cruz, Lisbon, &c.[**] It was first brought to Europe about the year 1530, and introduced into Spain as a medicine of great efficacy.

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[*] Vide Hort. Kewensis.

[†] Medico-Botanical Trans. part i. p. 63.

[‡] Dr. Hancock says, "They acknowledged that, when the right sort was not found in plenty, they sometimes dug one or two others, which they esteemed to be nearly equal in quality."—*Ed.*

[§] The word sarsaparilla is of Spanish origin, from Zarza, a briar or bush, and Parilla, a little vine.

[||] Polit. Essay, vol. ii. p. 442.

[**] The Honduras Sarsa has a whitish or dirty brown cuticle, and is more fibrous and has more ligneous matter than either the Lisbon or Vera Cruz. The Lisbon root, which is the produce of Brazil, has a reddish brown cuticle, is internally farinaceous; the Vera Cruz is in long slender twigs, covered with a wrinkled brown cuticle.—*Ed.*

SENSIBLE AND CHEMICAL PROPERTIES, &c. This root has a farinaceous and slightly bitter taste, it is inodorous. Its active properties are extracted, both by cold or boiling water, and partially so by alcohol and ether; to water, it communicates a reddish brown colour, but gives little taste; the infusion reddens litmus paper, and yields a précipitate with infusion of galls, which is again dissolved when the infusion is heated. Lime water, nitrate of mercury, and superacetate of lead, also produce precipitates, but is not affected by sulphate of iron, or any of the metallic oxides. The spirituous infusion is of a yellowish red colour, and becomes turbid on the addition of water: the extract obtained by inspissating the tincture, has a weak nauseous bitter taste, followed by a slight but durable pungency. The extract obtained from the watery infusion is larger in quantity, but weaker than that from the tincture. Ether takes up one part out of five of the powdered root. The tincture is of a golden yellowish colour, which when evaporated upon water, yields a small portion of resin.

M. Galileo Pallota has obtained from the roots of sarsaparilla, a peculiar alkaloid substance, which he has named *Parillina*, in which he supposes the active properties of the roots to reside: this substance is a white pulverulent salt, with a peculiar odour, and an austere, slightly astringent, nauseous taste; it is light and permanent in the air; it is insoluble in cold water, but soluble in hot; soluble in hot alcohol, but insoluble in cold. It reddens turmeric paper, fuses at 212°, and is decomposed at a higher temperature; is decomposed by strong sulphuric acid, but with the diluted acid, it forms a sulphate; with the other acids it forms neutral salts.* The Jamaica sarsaparilla is said to contain the greatest quantity of soluble matter; the Lisbon the least, and the bark of the Jamaica five times as much as the wood.

We are told by most writers, that the virtues of the plant reside entirely in the *cortical* part of the root, the ligneous part being tasteless and inert; † but we are told by Dr. Hancock, that " the medicinal properties of saraparilla are not confined to the bark so called, but are found to reside almost equally in all parts of the root, as the cuticle, woody, and farinaceous portions. This has been fully proved in Demerara, by the results of their separate administration in actual disease. The same will be easily believed by a trial of their sensible effects on the mouth and fauces."[*] The doctor further observes, that "the real and only criterion for knowing good sarsaparilla, is almost universally neglected, viz. its sensible qualities in the mouth."

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* Journal de Science, p. 19.

† Vide London Dispensatory, 4th edition—Edinburgh New Dispensatory, 11th edition, &c.

MEDICAL PROPERTIES AND USES. The root of sarsaparilla was introduced into Europe more than two centuries ago, as an undoubted specific in syphilitic disorders; but experience soon proved that although it might remove the syphilitic complaints common among the natives of South America, the Lues Venerea of the Europeans would not yield to this remedy; hence it fell into disrepute, and was but little used, until the middle of the last century, when it was again brought into notice, by the late Sir William Fordyce, and Dr. William Hunter. But although we are not to expect a cure of the lues venerea by this root alone, yet when it is given in conjunction with mercury, the disease is frequently much sooner subdued; and we are told by the above physicians, that ulcers, nodes, and other symptoms of this disorder, which resisted the effects of repeated salivation, have yielded to the use of sarsaparilla. Those formidable symptoms which so frequently follow a long continued course of mercury, and which may be considered rather the sequelæ of the disease, than the disease itself,[†] viz. membranous nodes, cutaneous ulceration, nocturnal pains in the limbs, enlargements of the joints, &c. are sooner removed by this root, than perhaps by any other medicine we are acquainted with. Sarsaparilla is also much used in rheumatic affections, scrophula, elephantiasis, and many other cutaneous complaints; but as it is generally given in conjunction with other medicines, its remedial efficacy in these diseases can scarcely be properly appreciated. Sarsaparilla root may be given in substance, (finely powdered) in doses of from one scruple to one drachm, three or four times a day; this we consider the best form for exhibiting sarsaparilla. It is also given in decoction, and in the form of extract, as ordered by the colleges, but the efficacy of the root is often completely destroyed in these preparations; hence arises the disappointment so frequently met with in the administration of this medicine. The dose of the *parilline* may be from two to ten grains.

Off. The Root.
Off. Pp. Decoctum Sarsaparillæ, L. E. D.
——— ——— Compositum, D.
Extractum Sarsaparillæ, L.

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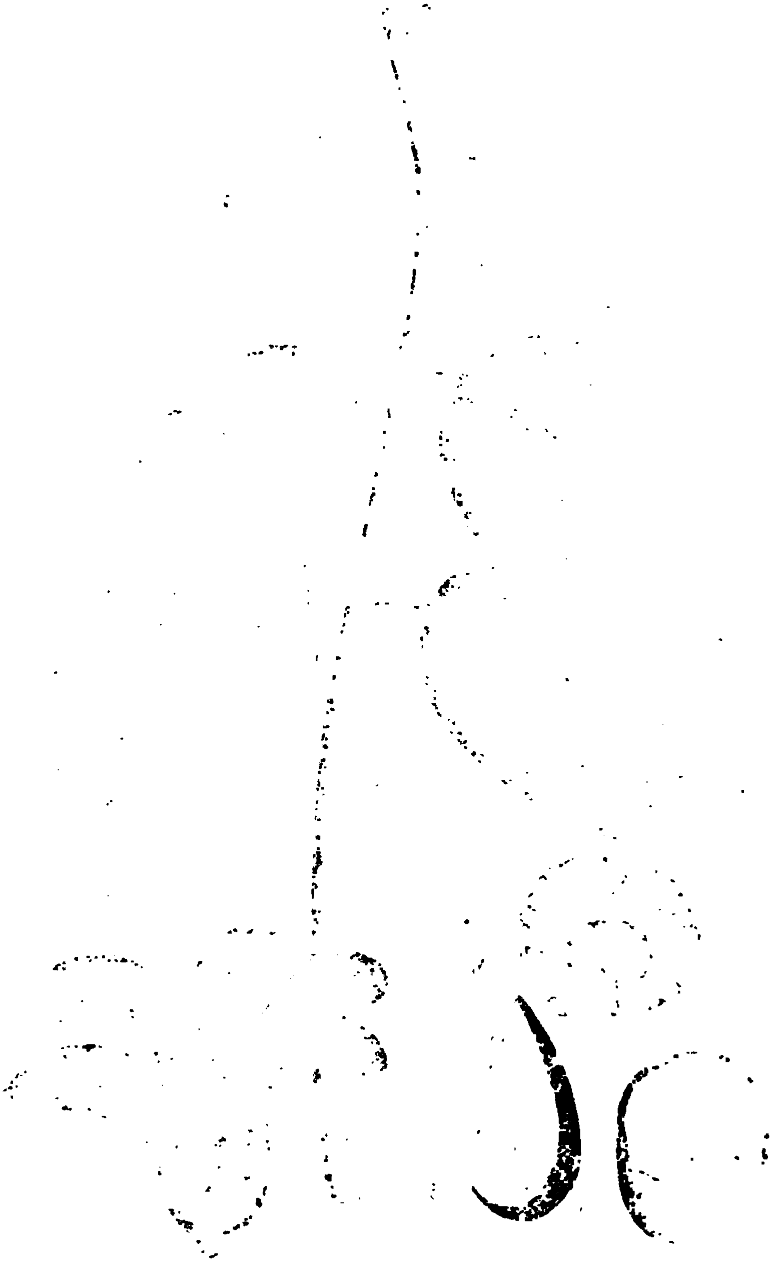
[*] Medico-Bot. Trans. part i. p. 64.

[†] Or rather the joint effects of the disease and the mercury.—*Ed.*



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DRYOBALANOPS CAMPHORA.

Camphor Dryobalanops, or Camphor Tree.[*]

Class POLYANDRIA.—*Order* MONOGYNIA.

Nat. Ord. GUTTIFERÆ, *Juss.*

GEN. CHAR. *Calyx* of one leaf, permanent, the border divided into five long, ligulate, reflex wings. *Corolla* five-petalled. *Capsule* superior, one-celled, three-valved. *Seed* solitary. *Embryo* inverse, without perisperm.

SPEC. CHAR. *Leaves* superior, alternate, inferior ones opposite, elliptic, obtusely acuminate, entire. *Petioles* short. *Stipules* in pairs, subulate, caducous.

THIS tree is a native of Sumatra and Borneo. It is stated by Mr. Prince, to grow spontaneously in the forests, and to be found in great abundance from the back of *Ayer Bongey*, as far north as Bacougan, a distance of two hundred and fifty miles. It is classed among the tallest and largest trees that grow on the coast, frequently measuring from six to seven feet in diameter; but the trees are many years of age before they acquire that size. The trunk rises to a great height, is arboreous, and covered with a brownish bark; the leaves are from three to seven inches long, and from one to two broad, elliptic, obtusely acuminate, entire, parallel veined, smooth, and stand upon short petioles, with subulate, caducous *stipules*, in pairs; the lower leaves are opposite, the upper ones alternate; the perianth is persistent, one-leaved, divided at the border into five foliaceous, spatulate, rigid reflex wings; the capsule is superior, ovate, woody, fibrous, finely streaked with longitudinal furrows, embraced at the base by the calycine, hemispherical cup of the perianth, and surrounded by its enlarged leaflets: one-celled, and three-valved; the seed is solitary, conforming to the cavity of the capsule, and has a strong terebinthinate fragrance.*

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[*] Fig. *a.* the perianth and capsule. *b.* A horizontal section of the capsule. *c.* A transverse section of the same. *d.* The embryo, magnified.

The camphor of commerce, which is brought to Europe from the Islands of Sumatra and Borneo, was generally supposed to be the product of the Laurus Camphora; and the British Colleges, in conformity to the received opinion, considered the officinal camphor as being so furnished. It was observed by Kœmpfer, in speaking of the Laurus Camphora, and of the extraction of camphor from its wood and roots, that "natural camphor in substance, and of the greatest value, is furnished by a tree on the Islands of Sumatra and Borneo, which is not of the Laurus genus;" but no accurate description had been given of the tree, until Mr. H. T. Colebrooke, having received (from Mr. Prince of Taponooly) some living plants, and a number of seeds in very perfect condition, was enabled, from the examination of them, to determine the genus to which it belongs.

The precise age when this tree begins to yield camphor has not been ascertained; but the young trees are known to yield only oil, which has nearly the same properties as the camphor, and is supposed to be the first stage of the camphor forming. Both camphor and oil are formed in the heart of the tree, occupying a space (which in others is frequently filled with pith) of about a foot or a foot and a half long, at certain distances. The method of extracting the oil, is by making a deep incision with a *billing* or Malay axe, in the tree, about fourteen or eighteen feet from the ground, till near the heart, when a deeper incision is made with a small aperture, and the oil (if any) in the tree, immediately gushes out, and is received in bamboos, &c. The camphor is procured in pretty nearly the same way: the trees are cut to the heart about the same distance from the ground as in the former instance, till the camphor is seen: hundreds may be thus mutilated before the sought for tree is discovered. When attained it is felled, and cut into junks of a fathom long, which are again split, and the camphor is found in the heart, occupying a space of the circumference of a man's arm. The produce of a middling sized tree is about eight China catties, or nearly eleven pounds, and a large tree will yield nearly double the quantity. It is said that the trees which have been cut and left standing in that state, will often produce camphor in eight or ten years after; but it is inferior in appearance.

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* The above description we have transcribed from Mr. H. T. Colebrooke's scientific paper on this subject, in vol. xii. of the Asiatic Researches; he says, "The description I shall offer of it is unavoidably imperfect, as the flower has not yet been seen by any botanist."

For the Sensible and Chemical Qualities, and Medicinal Properties and Uses of Camphor, see Laurus Camphora (next article.)

◆

LAURUS CAMPHORA.

Camphor Laurel.[*]

For *Class*, *Order*, *Nat. Ord.* and GEN. CHAR. see LAURUS CINNAMOMUM.

SPEC. CHAR. *Leaves* elliptical, three-nerved. *Clusters* axillary, somewhat compound, shorter than the leaves.

THIS species of laurel is a native of North America, China, and Japan; growing very abundantly in the woods at the western part of that island. It was first cultivated in England by Miller; it is easily propagated, and may be frequently seen in our green-houses, where however, although it may appear luxurious and healthy, it seldom produces flowers.

The camphor laurel rises to a considerable height, divides into many branches, and is covered with a smooth greenish bark; the leaves, which stand upon long footstalks, are ovate, lanceolate, entire, smooth, nerved, of a pale yellowish green on the upper surface, beneath glaucous, and are two or three inches long; the flowers are small, white, and stand upon short lateral peduncles; the common peduncles are long, naked, erect, and proceed from the alæ of the leaves; there is no calyx; the corolla is composed of six small, ovate, concave, unequal petals, which enclose a tuberculated nectary, terminating in bristly points, and surrounding the germen; the filaments are nine, shorter than the corolla, supporting round anthers; the inner filaments are supplied at the base with two round glands; the germen is roundish; style simple, about the length of the filaments, and terminated by an obtuse stigma; the fruit resembles that of the cinnamon, is a red oval berry seated in a small yellow cup, supported in pairs on a long footstalk; every part of this tree is strongly impregnated with the well-known odour of camphor.

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[*] Having figured several species of the Laurus, we have not thought it necessary to figure this plant, more especially as it cannot be considered the officinal tree as affording the camphor. *Ed.*

It was for a considerable time supposed, that the camphor brought into Europe from Borneo and Sumatra, was the exclusive produce of the Laurus Camphora; Mr. Colebrooke however detected this error, and ascertained that the camphor brought from those places, which was in fact the greater part of the camphor imported into Europe, was obtained from the *Dryobalanops Camphora*, (which we have described in the preceding article.)

From the Laurus Camphora, camphor is obtained by distillation; for this purpose the roots and smaller branches are cut into chips, which are suspended in a net, and placed within an iron pot or still, the bottom of which is covered with water, and an earthen head fitted to it: the water being set boiling, the steam penetrates the contents of the net, and the camphor being thus sublimated rises into the capital, where it is allowed to concrete on rice straws. The camphor thus obtained is by no means so pure or so valuable as that obtained from the Dryobalanops. We are told by the Abbé Grosier that the laurel camphor tree grows to an immense size in China, and he describes the process used by the Chinese for obtaining the drug as follows: "They take some branches fresh from the tree, chop them very small, and leave them steeping for three days in spring water, when they are put into a kettle and boiled for a certain time, during which they keep continually stirring them with a willow stick. This process is continued until the sap of the chips is found to adhere to the stick in the form of a white frost; they then strain the whole, and throw away the dregs and refuse. The liquor thus obtained is poured gently into a new earthen basin, well varnished, where it is suffered to remain one night; the next morning the crude camphor is found coagulated in a solid mass. To purify this crude substance they procure some earth from an old earthen wall, which being reduced to a very fine powder, is put into the bottom of a basin made of red copper, over this layer of earth a layer of camphor is spread, and so on alternately for four layers; the last stratum, which is of very fine earth, they cover with pennyroyal leaves, and over the whole place another basin, luting the brims with a kind of red earth. The mass is then submitted to the action of the fire, and an equal degree of heat kept up; great care is taken during this process to prevent the evaporation of the spirituous parts by the cracking or falling off of the luting, which would destroy the whole operation. When the basins have been exposed to the necessary heat they are taken off and left to cool, after which they are separated, and the sublimated camphor is found adhering to the upper basin. By repeating this operation the camphor may be obtained purer and in larger pieces."

The preparation of the crude camphor for the European market was for a considerable time monopolized by the Venetians, until the Dutch began to trade direct to the East Indies, where they learned the manner of purifying it; these last kept the art a secret as long as they could, but it is now practised extensively in this country. It is sublimed in glass vessels, after being mixed with $\frac{1}{30}$th of its weight of quicklime; it is then fused, either by increasing the heat suddenly when the sublimation is almost ended, without transferring the camphor to different vessels, or by melting the sublimed flowers in a vessel for that purpose:* When thus refined it is in large round cakes, about two or three inches thick, concave on one side, and convex on the other, and generally perforated.

CHEMICAL AND SENSIBLE PROPERTIES OF CAMPHOR. Camphor was for some time supposed to be a resin, and was so designated by the Dublin College, but chemists are now agreed that it is a proximate vegetable principle, *sui generis*, and the researches of vegetable chemists have ascertained that it is a principle found in many trees and shrubs besides those from which the camphor of commerce is obtained, as from the roots of the cinnamon, cassia, and sassafras laurels; from many of the verticillatæ, as sage, lavender, rosemary, hyssop, &c.; from the roots of galangale, zedoary, ginger, &c.; and Zea describes a variety of camphor, procured from a tree in South America, termed *Caratte* by the natives, the botanical characters of which are not known, and from the bark of which the camphor exudes in the form of tears. An artificial camphor may be prepared by passing muriatic acid gas through oil of turpentine.

Pure camphor has a strong, peculiar, fragrant, penetrating odour, and a bitter, pungent, aromatic taste, accompanied with a sense of coolness; it is white, pellucid, unctuous to the touch, and friable; breaking with a shining, foliated fracture, which displays a crystalline texture: notwithstanding its friability it is extremely difficult to

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[*] See Aikin's Dictionary of Chemistry, and Thomson's Mat. Med.

be pulverised, requiring for this purpose to be slightly moistened with alcohol. It is lighter than water, (sp. gr. 0.9887) and is extremely volatile; hence it should be kept in close vessels, otherwise it loses a very considerable portion of its bulk and weight by evaporation, particularly in a moist atmosphere. It melts at a temperature of 88° (Fah^{r}.), boils at 400°, and sublimes in close vessels, crystallizing unchanged in hexagonal plates, or, according to Mr. W. Philips, into flat octohedrons. It readily ignites, burning with a brilliant flame, and giving out much smoke; it is very sparingly soluble in water, although it communicates to it its smell and pungency; according to Cadet, one French pint of water dissolves about 16 grs. of camphor, which are again precipitated by pure potass;[*] the addition of carbonic acid gas considerably augments the solvent power of water over camphor.[†] Alcohol, ether, the sulphuric and nitric acids a little diluted, and the muriatic, strong acetic, and fluoric acids dissolve camphor, as also the fixed and volatile oils: it is separated, unaltered, from these solutions by the addition of water. It is decomposed by the concentrated sulphuric acid, forming artificial tannin; and by repeated distillation with nitric acid, it is converted into camphoric acid. It unites with the hardest resinous substances, converting them into soft, tenacious masses; the alkalies have but little action on camphor; when mixed with clay and distilled in close vessels, it is decomposed into a volatile oil and charcoal;[‡] from this, it would appear to differ from the essential oils only in containing a larger proportion of carbon. Dr. Thomson gives its component parts as follows: carbon 6.375; hydrogen 1.250; oxygen 1.000.

Medical Properties and Uses. It does not appear that camphor was known to the Greeks, and its first introduction into Europe is ascribed to the Arabians, by whom it was called Cafur, or Canfur, from which our name is evidently derived.[§] By the Arabian physicians it was thought to possess refrigerant powers, a supposition which is still a subject of dispute. Camphor is stimulant, diaphoretic and narcotic; its stimulant powers however are very transitory, and are followed by sedative effects. Dr. Woodville seems to consider it a direct sedative: "The experiments of Alexander," he says, "who found that his pulse was lessened ten vibrations in a minute, sufficiently establish its sedative character; and though some instances might show a contrary effect, they are such as usually occur from the use of medicines universally admitted to be the most powerful of this class, and are to be explained as a secondary effect upon the principle of a reaction in the system." Camphor has been much used in fevers of all kinds, particularly those of the typhoid kind; in low nervous fevers attended with delirium and watchfulness, Dr. Cullen says he has employed it with advantage; in putrid fevers it has been much resorted to, and on this head Dr. Cullen says—"from the very remarkable antiseptic powers which it discovers in experiments out of the body, it is very probable that when thrown into the body in large quantities, so that at least its more subtile parts may be diffused over the whole system, it may be expected to produce considerable antiseptic effects." As a stimulant and antiseptic it has been given with good results, both alone and as an adjunct to bark and opium, in cynanche maligna, confluent small-pox, and malignant measles; in the treatment of that peculiar and very malignant fever which has so long prevailed in Dublin and other parts of Ireland, camphor has been much used, particularly in the latter stage of the fever. In spasmodic affections, as hysteria, epilepsy, chorea, asthma, painful menstruation, hypochondria, &c. camphor has been found eminently useful. Dr. Cullen has had several instances of a paroxysm of epilepsy which was expected in the night, prevented by a dose of camphor at bed-time, even when the camphor was given alone, but he found it especially useful when given in conjunction with ammoniated copper, the sulphate, or the the flowers of zinc. From its narcotic and anodyne effects, which are produced without any material increase of the pulse, it has been successfully employed to allay pain and irritation in acute rheumatism, gonorrhœa, gout, pneumonia, and other inflammatory diseases, as mania and inflammatory fevers; in these cases it should be preceded by evacuations, and given in combination with nitre or antimonials, and in maniacal cases with opium. Dr. Cullen did not find much benefit to result from the use of camphor in mania, but many of the continental physicians have recorded cases in which it has been attended with the best effects. Camphor is sometimes given to obviate the irritating effects of other medicines, as cantharides, mezereon, squill, the saline preparations of mercury, and drastic purgatives; Dr. Cullen did not find it to possess this latter property. In moderate doses camphor operates as a cordial, increasing the heat of the body, and exhilarating the spirits; it likewise softens and renders fuller the pulse, and promotes diaphoresis: in larger doses it allays irritation and spasm, abates pain, and induces sleep. The proper dose of camphor seems to be somewhat undefined at present; in this country it has been rarely given to the extent of ℈i. In immoderate doses it has been found to produce vomiting, vertigo, delirium, convulsions, and other deleterious effects. Dr. Cullen, however, notices a case of mania under the care of Mr. Latta, surgeon, in which the dose of camphor was gradually increased to above sixty grains three times a day, without any untoward effects, and by which the cure was effected. Dr. Heberden relates two instances in which camphor seemed to occasion stranguary; Dr. Cullen considers these accidental occurrences, and says he has "employed it fifty times, even in large doses, without ever observing its having any effect upon the urinary passages." We shall now quote what Dr. Cullen says on the subject of the dose of this substance. "It may be given in doses of very different quantities; and it appears to me from many trials, that doses of a few grains, repeated only after long intervals, have hardly any effect at all, and that to obtain sensible effects from it, it must either be given in large doses, not under that of twenty grains, or, if given in small doses, these must be repeated frequently after short intervals. To what length in either way we may proceed I have not experience enough to determine with any precision. From the effects of two scruples given in one dose, (in a case narrated) and in another quoted from Dr. Hoffmann, it would appear that such doses are violent and dangerous, but from some other experiments it appears that larger doses have been sometimes given with impunity; and when it is given in divided doses, it appears from Collin's experiments, that it may be given to the quantity of a drachm, or two drachms in the course of a day; and in one of his experiments it was given to the quantity of half an ounce. It is probable that from large doses only considerable effects are to be expected; and as it appears that the effects of camphor are not very durable in the body, it will be obvious that the repeated and long continued use of it may be necessary to the cure of several diseases." We shall conclude this part, an important one, of our subject, by offering as an opinion of our own, that much depends on the state of the system at the time the medicine is administered; the active properties of camphor evidently reside in the highly volatile oil which is one of its components, and where the capillary system is open, and a diaphoresis induced, by which this volatile substance is carried off, it is reasonable to conclude that the dose of camphor may be pushed much farther than when the capillaries are closed, as in the dry hot state of the skin which accompanies several febrile disorders; and on this assumption we would recommend the use of the warm bath where deleterious effects are produced by an over-dose of this substance.* Camphor taken inwardly by birds, or quadrupeds, as rabbits, dogs, sheep, &c. to the quantity of a drachm, has invariably been found to produce deleterious effects. In some experiments upon dogs, M. Defermon found that contraction of the spleen takes place, producing a rugose appearance of its surface, and a movement throughout the whole viscus.

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[*] Ann. de Chimie, lxii. 132.

[†] Thomson's Mat. Med.

[‡] According to Bouillon la Grange, into 45.856 of volatile oil, and 30.571 of charcoal.

[§] Avicenna, Serapion, Clusius Exot. 245.

As a local application camphor is used in frictions, dissolved in oils, alcohol, or acetic acids, for allaying rheumatic and muscular pains; with the addition of laudanum it has been found very efficacious when rubbed on the abdomen, in flatulent colic, dysentery, and visceral inflammation; as a collyrium it is useful in ophthalmia, and dissolved in oil as an injection in ardor urinæ; in tenesmus occasioned by ascarides, or other irritations of the rectum, it has been found useful as an enema. "A pill of camphor and opium, or a solution of camphor in spirit of turpentine, put into the hollow of a carious tooth, affords almost immediate relief in tooth ache. Twenty or thirty grains of camphor added to a common poultice and applied to the perinæum allays chordee in gonorrhœa."†

Camphor should be given in a state of very minute division, otherwise it is apt to produce pain in the stomach; for this purpose it ought to be well triturated in a mortar with some dry powder, as nitre or sugar: but the best way to reduce it to a fine powder is by the addition of a few drops of alcohol, or it may be rubbed up with mucilage and almond emulsion so as to suspend it in water, and this form is preferred by many to pills or boluses. We have found the *Mistura Camphora* one of the best preparations, where the camphor was intended to act merely as a cordial or diaphoretic.

Off. Pp. Acidum Acetosum Camphoratum, E. D.
Emulsio Camphorata, E.
Linimentum Camphoræ, L. E. D.
——— Camphoræ Comp. L.
——— Saponis, L. E. D.
Mistura Camphoræ, L. D.
Spiritus Camphoræ, L. E. D.
Tinctura Camphoræ Comp. L. E. D.

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* Opium is recommended as the best antidote to an over-dose of camphor.

† Thomson's Mat. Med.

EUPHORBIA OFFICINARUM.

Officinal Euphorbium or Spurge.[*]

Class DODECANDRIA.—*Order* TRIGYNIA.

Nat. Ord. TRICOCCÆ, *Linn.* EUPHORBIA, *Juss.*

GEN. CHAR. *Corolla* four or five petalled, fixed to the calyx. *Calyx* one-leaved, ventricose. *Capsule* tricoccous.

SPEC. CHAR. Aculeate, naked, many angled, prickles in pairs, spreading, equal.

THIS species of Euphorbia is a perennial, shrubby, and very succulent plant. It is a native of Africa, where it grows in great abundance. This plant is the Δένδρον εὐφορβίον of Dioscorides, and derived its name from Euphorbius, physician to Juba, King of Lybia, who named it, in honour of his physician. The genus Euphorbia comprises a very numerous family of singular plants, upwards of one hundred and twenty † species of which are cultivated in our botanic gardens. The Euphorbia Officinarum was first cultivated in this country about the year 1597.

The stem of this plant rises to about five feet in height, is simple or branched towards the top, erect, round and angled or furrowed, with eight or more longitudinal fissures; the branches are destitute of leaves, and go off first horizontally and then ascend; are more distinctly angled than the stem, scolloped and furnished with prickles, which are everywhere double; the flowers are sessile, on the extremities of the branches at each pair of spines, of a crimson or yellowish colour; the calyx is monophyllus, bell-shaped, persistent, and cut into five marginal teeth: the petals are four, turbinated, gibbous, thick, truncated, and attached by claws to the mar-

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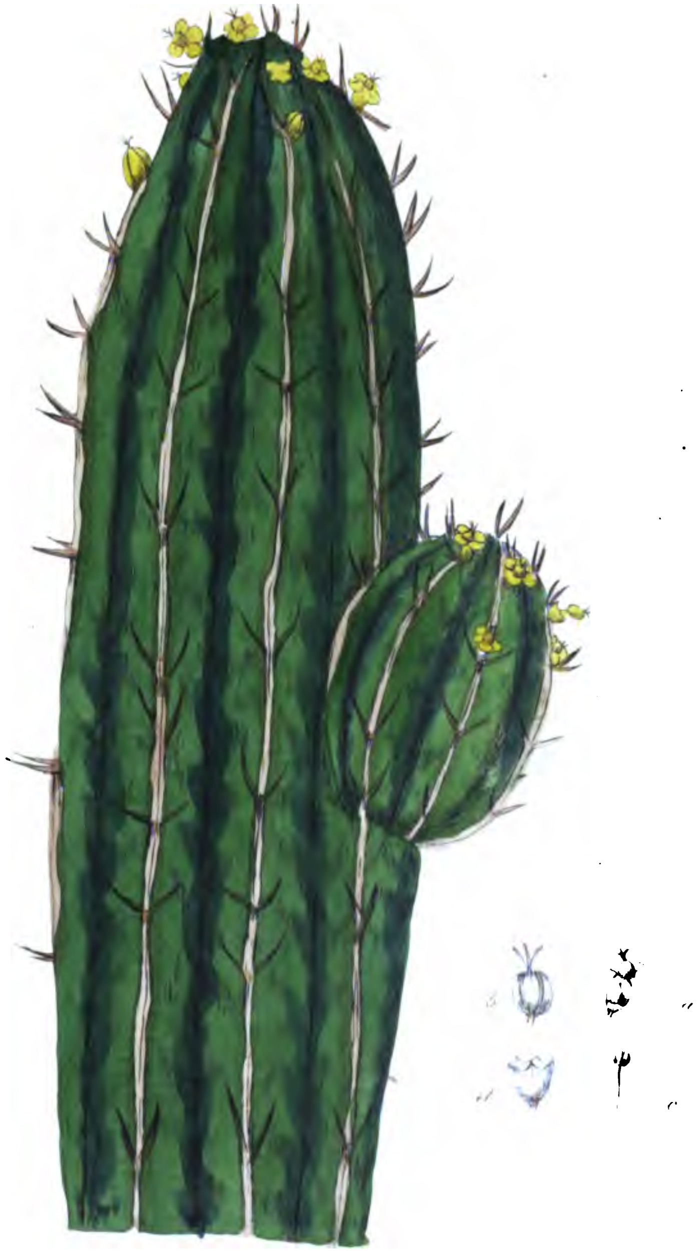
[*] Fig. *a.* the corolla magnified. *b.* The germen and styles, magnified. *c.* An anther, magnified. *d.* The calyx, magnified.

† Twelve of which are natives of Britain.



Euphorbia Officinarum.

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gin of the calyx; the filaments are about twelve, capillary, longer than the petals, and support globular two-lobed anthers; the germen is roundish, three-lobed, with a simple short style, crowned with three spreading, obtuse stigmas; the capsule is tricoccous, elastic, and contains three roundish seeds.

The Euphorbia of the shops is the concrete juice of this plant, which is obtained by making slight incisions in the branches with a knife, from which a milky juice exudes, which by exposure to the air soon becomes solid. We are told by Mr. Jackson, that in the lower regions of Mount Atlas the inhabitants collect the gum resin, which they call *furbiune*, in September. The quantity yielded by the plants is so considerable that they are cut only once in four years, the produce then obtained being sufficient to supply all Europe for that space of time. The recent juice is so corrosive as to erode the skin wherever it touches, and the people who gather it, are obliged to tie a cloth over their mouths and nostrils to protect them from the acrid dust of the withered branches. We are told by Bruce, that "when the tree grows old, the branches wither, and in place of milk the inside appears to be full of powder, which is so pungent, that the small dust which he drew upon striking a withered branch seemed to threaten to make him sneeze to death, and the touching the milk with his fingers, excoriated them as if scalded with boiling water."

The Euphorbia imported into Europe, however, is the produce of several species of this plant, many of which furnish a similar juice to the one we have described, among which are the Euphorbia Antiquorum and Euphorbia Canariensis of Wildenow.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Euphorbium is brought to us immediately from Barbary, in packages containing from 100 to 150 lbs. weight. It is in small drops of an irregular form, of a pale yellow colour externally, but somewhat white within, and breaks easily between the fingers. It is inodorous; when first chewed it has little taste, but soon gives a very acrid, burning sensation to the mouth and fauces, which is very permanent. It is soluble in ether, alcohol, oil of turpentine, oil of almonds, and partially so in acids and alkalies. When the ethereal tincture is evaporated on water, it leaves on the side of the glass a pellicle of transparent resin, resembling an officinal plaister. When triturated with water it renders it milky, but only one part in seven of the Euphorbia is dissolved. Alcohol takes up about one part in four, and forms a clear straw-coloured solution, which is rendered milky by the addition of water. It burns with an agreeable smell and a bright flame; its specific gravity is 1.124. Braconnot[*] makes 100 parts of Euphorbium to contain 37.0 of resin, 19.0 wax, 20.5 malate of lime, which was mistaken for gum, 2.0 malate of potass, 5.0 water, 13.5 woody matter, and 3.0 loss.

MEDICAL PROPERTIES AND USES. Euphorbium is powerfully cathartic and emetic, hence it was formerly given as a hydragogue in dropsies, &c. but its effects are so violent, even when exhibited in small doses, that it is now very seldom given internally. It is also a powerful errhine, but requires dilution, for if used alone its action is so violent as to produce inflammation and hæmorrhage. When properly diluted with starch or some other inert powder, and used with discretion, it has been found an excellent errhine in lethargy, deafness, paralysis, amaurosis, palsy, &c.

Poisonous Effects. Euphorbium is ranked by toxicologists, among the acrid poisons. Orfila made many experiments on dogs to ascertain the effects of Euphorbium on the animal economy, and from them has drawn the following conclusions: First, That Euphorbium exerts a local action extremely violent, capable of producing acute inflammation. Secondly, That its fatal effects depend rather on sympathetic irritation of the nervous system than on its absorption. Thirdly, That it acts on the human species as on dogs.

In the Philosophical Transactions for 1760, a case is recorded of a Mrs. Willis, who took by mistake two ounces of the tincture of Euphorbium, prepared with two drachms of camphor and two of Euphorbium to two ounces of rectified spirit. Immediately after she experienced a violent suffocation, attended with a burning pain in the mouth and stomach; large draughts of warm water were immediately exhibited, which produced copious vomiting; the burning pain at the stomach continuing, she was ordered to drink oil and water alternately; the vomiting continuing, an ounce of ipecacuanha wine was administered, which produced copious evacuation from the stomach and bowels, after which an opiate and mild diluents soon produced tranquility. The violent effects produced by the tincture of Euphorbium in this case must be partly attributed to the camphor.

Many other species of Euphorbia are equally violent in their effects, viz. Euphorbia Antiquorum, Euphorbia Palustris, Euphorbia Hiberna, Euphorbia Characias, Euphorbia Amygdaloides, Euphorbia Canariensis, Euphorbia Verrucosa, Euphorbia Platiphyllos,

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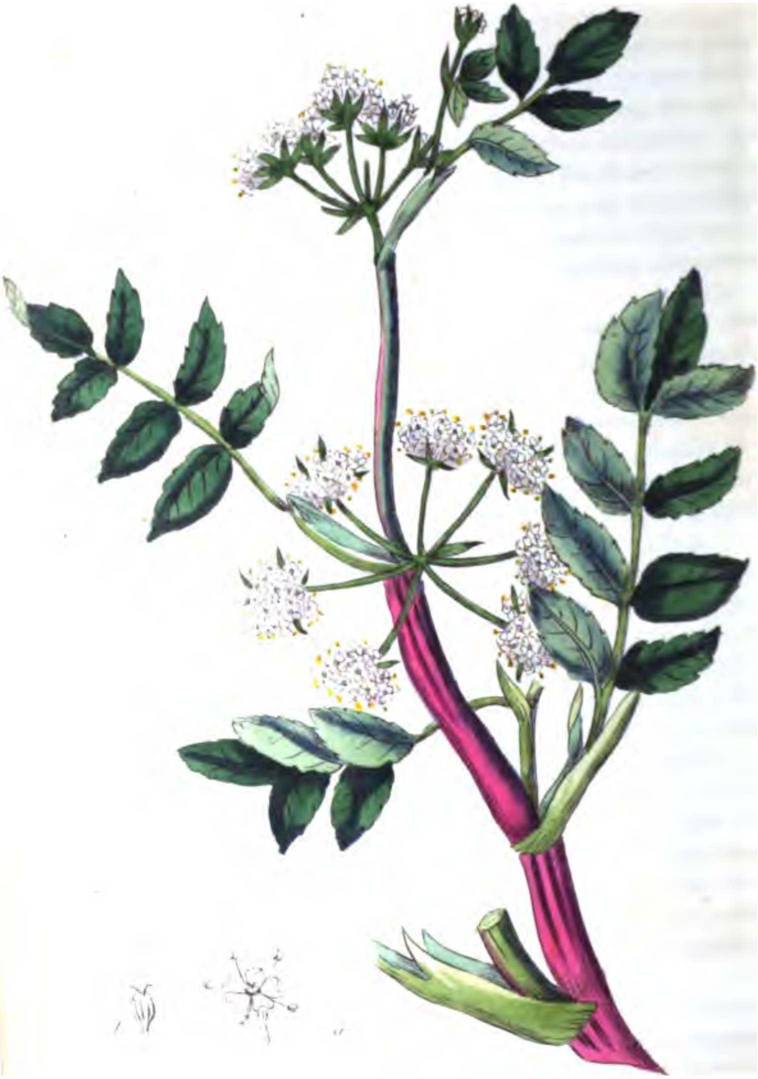
[*] Annales de Chimie, lxviii. 44.



Sium Nodiflorum.

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Exiqua, Euphorbia Mauritanica, Euphorbia Nerifolia,
rbia Esula. We are told by Scapuli, that this last
ced death in a woman, in half an hour after she had
ty grains of the root. The same author witnessed
ath to follow the application of Euphorbia Esula to

species of Euphorbia have also been used medi-
phorbia Ipecacuanha, which, in doses of from
nty grains, generally proves emetic, and acts
ce. The Euphorbia Corollata is a pretty
doses of from five to ten grains, double the
. The juice of the Euphorbia Helioscopia
tion for destroying warts. The seeds of the
emetic, and have been proposed as a
a, and the oil expressed from them is

orbium (the gum resin.)

SIUM NODIFOLIUM.

*Procumbent Water Parsnip.**

Class Pentandria.—*Order* Digynia.

Nat. Ord. Umbellatæ.

Gen. Char. *Fruit* sub-ovate, striated. *Involucre* many leaved. *Petals* cordate.

Spec. Char. *Leaves* unequally pinnate. *Leaflets* serrated. *Umbels* axillary, sessile.

This perennial indigenous plant is common in rivers, fens, and ditches, flowering in July and August. The root is long, creeping, and supplied with numerous fibres; the stem is procumbent, thick, jointed, succulent, scored, branched, and seldom exceeds a foot in length; the leaves are pinnate, consisting of three or four pairs of pinnæ, terminated by an odd one; the pinnæ are ovate, pointed, serrated, and sessile; the flowers are produced in solitary, axillary umbels, which are composed of from five to nine umbellets; the general involucrum is composed of one leaf when present, but it is frequently altogether wanting; the involucel consists of five or seven pointed concave leaflets, the length of the pedicels; the corolla is composed of five white petals, which are bent inwards at their apices; the filaments are slender, longer than the corolla, and furnished with roundish anthers; the germen is small, placed beneath the corolla, and supports two slender reflexed styles, terminated by blunt stigmas; the fruit is ovate, small, and divisible into two seeds, which are flat on one side, on the other convex and scored.

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* Fig. *a.* a flower, magnified. *b.* The germen and styles.

This plant does not possess any particular sensible properties, and its medical virtues are also said to be very trivial; but although it is now but little used, we have the testimony of former writers in favour of its efficacy, in a variety of disorders,* particularly as an antiscorbutic, and in cutaneous eruptions and tumours of the lymphatic system. We are told by Dr. Withering, that a young lady six years old, was cured of an obstinate cutaneous disease, by taking three large spoonfuls of the juice twice a day; and he further says, "I have repeatedly given to adults three or four ounces every morning in similar complaints with the greatest advantage." It is not nauseous, and children take it readily if mixed with milk, in doses of three or four ounces, it neither affects the head, the stomach, nor the bowels.

The juice may be given to children in doses of from one to three table spoonsful once or twice a day; dose for adults, three or four ounces every morning.

Off. The Herb.

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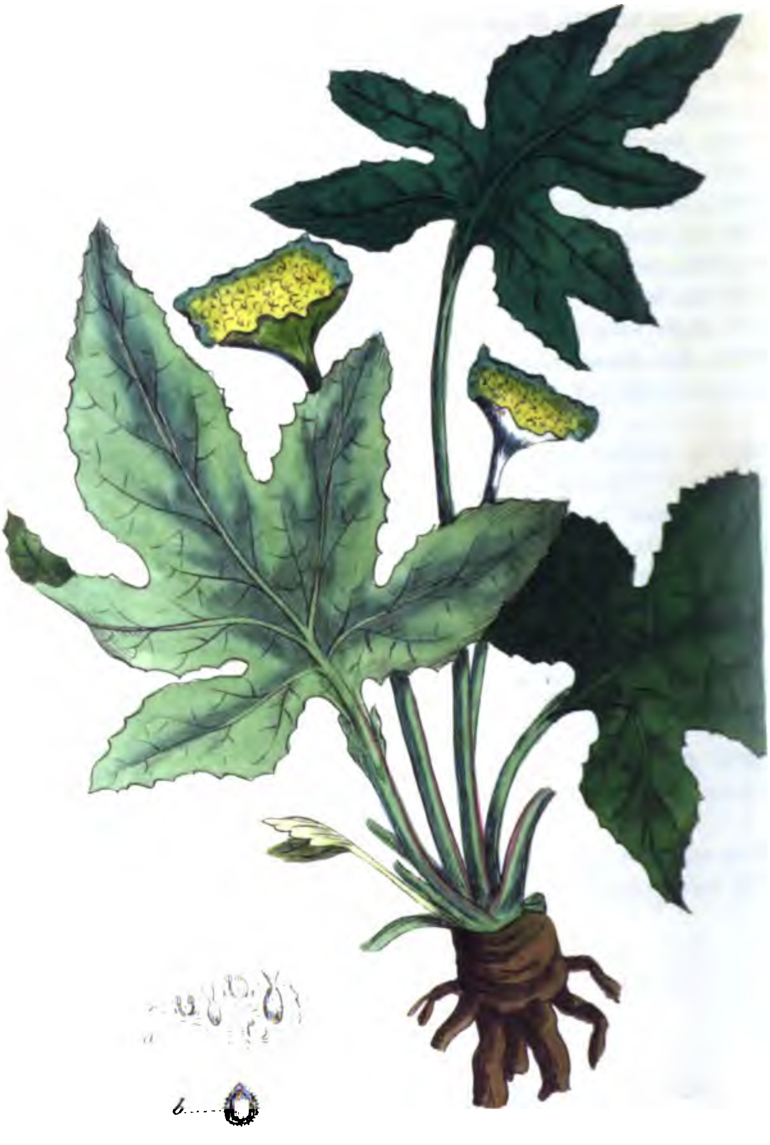
* Berry, Ray, Withering, &c.



Dorstenia Contrajerva.

t. del et lith.

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DORSTENIA CONTRAJERVÆ.

Contrajerva.[*]

Class MONŒCIA.—*Order* DIANDRIA.

Nat. Ord. SCABRIDÆ, *Linn.* URTICÆ, *Juss.*

GEN. CHAR. *Receptacle* common, one-leafed, fleshy, in which solitary seeds are placed in sockets without attachment.

SPEC. CHAR. *Leaves* irregularly laciniated, serrated. *Scapes* rooted. *Receptacles* quadrangular.

THIS perennial plant is a native of South America, and some of the West India islands. Nicholas Monardus (above two centuries ago) is the first author who mentions this plant, the roots of which he says, are called by the Spanish Indians *Contrajerva*, signifying an antidote to poison. We are told by Clusius, that he received some roots from Sir Francis Drake, which were brought from Peru, where they were highly valued, and supposed to counteract the effects of every kind of poison. It is not improbable, but the roots which are imported into Europe are the produce of several species of Dorstenia; for we are told by Dr. Houston, that the officinal contrajerva is the root of the Dorstenia Houstonia, and Dorstenia Drakena.[†]

The root is fusiform, knotty, branching, furnished with many fibres, externally brown, and internally whitish; the leaves are irregularly formed, being lobed or dentated, and placed upon long radical footstalks, which are winged towards the leaves; the lobes are veined, serrated, and pointed; the stems are simple scapes, which rise about four inches in height, and each supports an irregular, quadrangular, fleshy receptacle, which contains the parts of fructification; the flowers are scarcely conspicuous, but are found to be male and female, closely situated together, immersed in the receptacle, and occupying the whole of its disc; the former consists of two slender short filaments, with yellow anthers; the latter of a roundish germen, supporting a single style, terminated by an obtuse stigma; the capsule, when ripe, possesses an elastic power, by which the seeds are thrown out with considerable force.

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[*] Fig. *a.* a portion of the receptacle, magnified, shewing the male and female flowers. *b.* A seed.

[†] Vide Clusius Exot. p. 311. Phil. Trans. No. 421, p. 195.

Sensible Qualities, &c. Contrajerva root has a peculiar but not unpleasant odour, its taste is bitter, when chewed it heats the mouth, and leaves a pretty lasting impression on the tongue; these qualities it preserves when dried and reduced to a state of powder. The watery infusion is of a brown colour, with the taste of the root; it is not altered by sulphate of iron; the watery decoction is of a dark red brown, and very mucilaginous. The alcoholic tincture reddens vegetable blues, is not altered by sulphate of iron, but is precipitated by water, and on the spirit being distilled off, leaves a rather acrid resin, with the taste of the root.

Medical Properties and Uses. Contrajerva is a gentle stimulant diaphoretic and tonic, and is frequently given in exanthematous diseases, typhus, dysentery, and in some kinds of diarrhœa. It is also a useful remedy in rheumatism, both chronic and acute, in fevers attending the dentition of weak infants, and to women after their accouchement.*

Off. The Root.
Off. Pp. Pulvis Contrajervæ Compositus, L.

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CROTON ELUTERIA.

Elutheria Croton.

Class Monœcia.—*Order* Monadelphia.

Nat. Ord. Tricoccæ, *Linn.* Euphorbiæ, *Juss.*

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* The late Sir Rd. Croft usually prescribed the compound powder of contrajerva in combination with ether and cinnamon water, in preference to the antiquated spermaceti draught. We have followed his practice with the most decisive advantage to our patients; the above combination generally relieving the after-pains, and promoting gentle diaphoresis.—*Ed.*

GEN. CHAR. Male. *Calyx* cylindrical, five-toothed. *Corolla* five-petalled. *Stamens* ten to fifteen.

Female. *Calyx* many-leaved. *Corolla* none. *Styles* three, bifid. *Capsule* three-celled. *Seed* one.

SPEC. CHAR. *Leaves* ovate, lanceolate, entire, under-side downy. *Stem* arborescent.

THIS tree is a native of the Bahama Islands, it has also been found in Jamaica, by Dr. Wright. It was first introduced into Britain about the year 1748, by Mr. P. Miller, who says, "this plant will live through the winter in an airy glass case, without artificial heat, but in that situation should have very little water in winter, for the plant abounds with a milky juice like the Euphorbia, so must at no season of the year have too much wet; it may be propagated by cutting, during the summer season."

This tree seldom exceeds twenty feet in height,* the stem divides into numerous branches towards the top, and is covered with a brownish smooth bark; the young branches when broken, ooze out a thick balsamic liquor; the leaves are entire, ovate or cordate, lanceolate, and somewhat elongated towards the apex, on the upper side of a bright green, and stand alternately on footstalks; the flowers are in axillary and terminal racemes; the calyx is divided into five ovate leaflets; the petals are five, whitish, oblong, obtuse, and spreading; the female flowers are composed of a roundish germen, supporting three bifid spreading styles, terminated by obtuse stigmata: the male flowers have ten subulate filaments, supporting erect, compressed anthers; the capsule is superior, globular, rough, marked with six furrows, and divided into three cells, containing a solitary oval shining seed.

The tree we have described, is now generally believed by botanists to be the species which supplies the cascarilla bark of the shops, although the London College refers it to the Croton Cascarilla of Linnæus, the bark of which, according to Dr. Wright, has none of the sensible qualities of cascarilla: but it is very probable, that the cascarilla bark may be the produce of various species of Clutia.† Cascarilla bark is imported into Europe chiefly from the Bahama

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* In this country it seldom exceeds three or four feet in height, Miller's Gard. Dict.

† This tree is the Clutia Elatheria of Linnæus.

Islands, where it forms a principal export; it comes packed in chests and bales; and consists of pieces in quills, from six to eight inches long, and about one-eighth of an inch thick, and covered with a thin whitish epidermis.

Sensible and Chemical Qualities, &c. Cascarilla bark is warm, aromatic, spicy, and somewhat bitter, the bitterness increasing as it is chewed. The colour of the inside of the pieces is a reddish cinnamon hue; they break with a close fracture and short. It takes fire readily and burns vividly, but when taken from the fire or candle it soon goes out, and emits a very grateful odour, resembling musk or amber. The watery infusion is of a reddish brown, fragrant, bitter, and becomes of a darker brown with sulphate of iron. It gives out its active constituents completely to proof spirit; thirty pounds of bark yield nearly sixteen ounces of essential oil.[*] Ether takes up one and a half part in ten, and when evaporated on the surface of water, leaves a thick pellicle of bitter resin. According to the analysis of Tromsdorff, it contains 18 per cent. of mucilage and bitter principle, 15 of resin, 1.5 of volatile oil, 1 of water, and 64.5 of woody fibre.

Medical Properties and Uses. Cascarilla bark is both tonic and aromatic. It was first introduced into practice by Professor Stisser, in the year 1690, who recommended it as a powerful diuretic and carminative, having used it with success in calculous, phthisical, scorbutic, and other complaints. Soon afterwards it was sold in Germany as a species of Peruvian bark, and was much used by the German physicians in intermittent and remittent fevers with great success; but although its virtues have been much over-rated as a febrifuge, yet its tonic and astringent powers are not inconsiderable, and it has been successfully employed in dyspepsia, and debility of the digestive organs, in the latter stage of dysentery and diarrhœa; it may also be given with much advantage in most cases requiring the aid of a gentle tonic and corroborant. The late Dr. Underwood recommended it in the gangrenous thrush of infants. It may be given in substance, (powdered) from fifteen grains to one drachm several times a day; or in infusion, one ounce bruised, to one pint of boiling water, of which a wine-glassful may be taken three times a day. It is also given in the form of extract and tincture.

Off. The Bark.
Off. Pp. Extractum Cascarillæ, D.
Infusum Cascarillæ, L.
Tinctura Cascarillæ, L. D.

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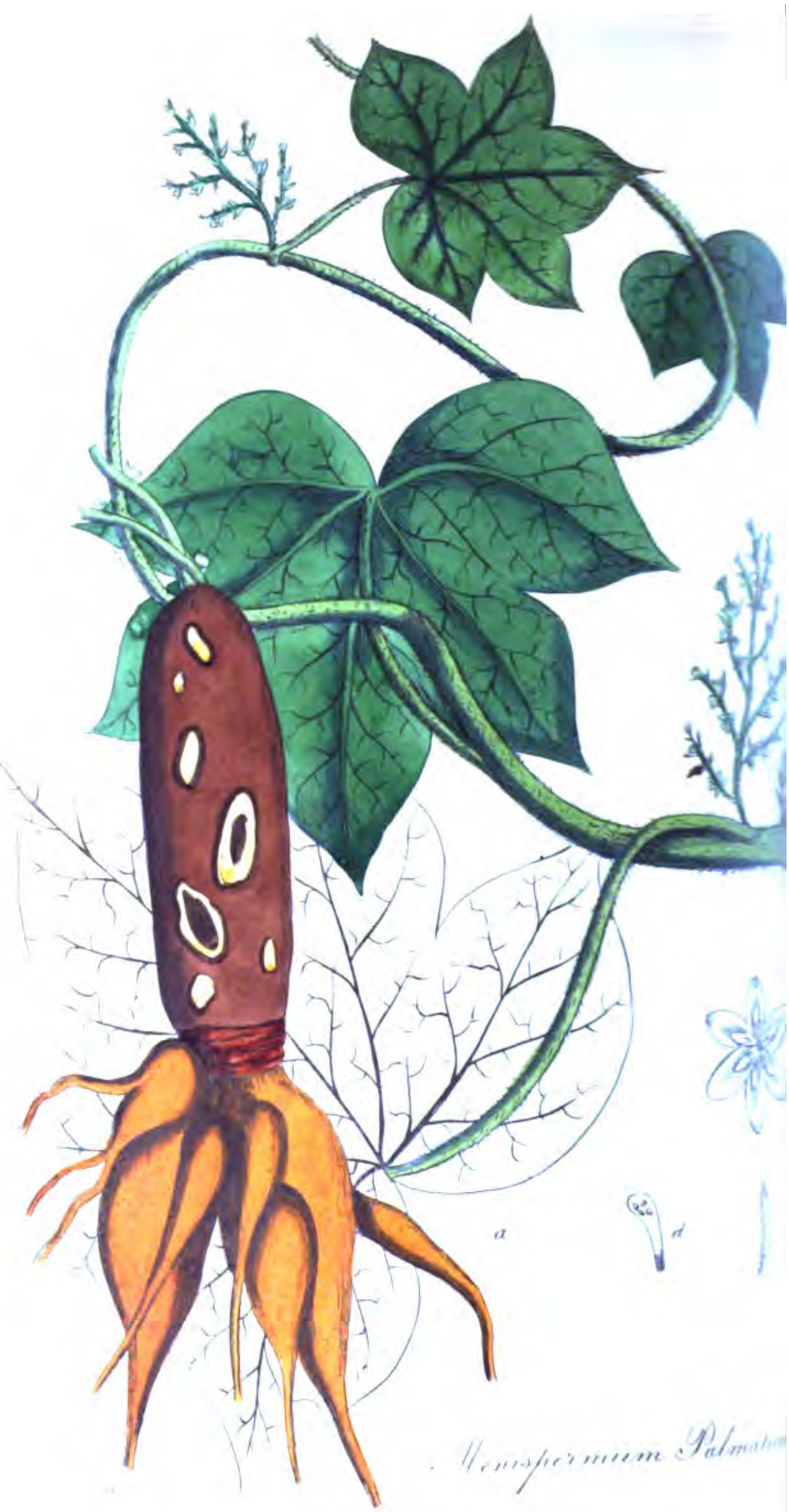
[*] Gray's Elements.



Menispermum Palmatu

MENISPERMUM PALMATUM.

Palmated Menispermum.[*]

Class DIŒCIA.—*Ord.* DODECANDRIA.

Nat. Ord. MENISPERMEÆ.

GEN. CHAR.—Male. *Calyx* two-leaved. *Petals* four or six exterior, eight interior *Stamens* sixteen.

Female. *Corolla* similar to that of the male. *Stamens* eight, sterile. *Germens* two or three. *Berries* one-seeded.

THIS species of Cocculus is a native of the eastern part of southern Africa; it has been ascertained, that it grows naturally, and in great abundance inland, about fifteen or twenty miles, in the thick forests about Oibo and Mosambique, on the Zanquebar coast of Africa. This discovery we owe to M. J. F. Fortin, a French gentleman, settled at Madras, who brought to that place, from Mosambique, in September 1805, an entire offset, (from the main root) of a larger size than usual, from which a plant was raised in Dr. Anderson's garden, at Madras; but the genus could not be determined for want of female flowers. From a drawing in the possession of the Linnæan Society, it has been ascertained to be of the natural order Menispermeæ; but, as it was a male plant only, the genus and species were undetermined until they were fixed by De Candolle. Dr. Berry drew up the following character of the male plant, but the female plant has not yet been described.†

The root is perennial, ramose, and bears fusiform tubers; the stems are annual, withering at the end of seven months; voluble, simple, round, hairy, and about the thickness of a goose-quill; the leaves are five-lobed, and five-nerved, with entire, acuminate lobes, and stand upon round hairy petioles, shorter than the leaves; the male flowers are in axillary, solitary, compound racemes, bearing partial, hairy, alternate peduncles, with sessile flowers; and lanceolate, ciliated deciduous bracteas; the calyx is hexaphyllous, with three exterior, and three interior leaflets, equal, oblong, obtuse, and glabrous; the corolla is composed of six minute petals, which are oblong, obtuse, concave, and fleshy; the stamens are six, a little longer than the corolla; the anthers are four-lobed and four-celled; there is no pistillum.

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[*] Fig. *a.* the root. *b.* A flower, greatly magnified. *c.* A bractea. *d.* A stamen, (both the last magnified.)

† Asiatic Researches, vol. x.

Calumba root is the staple export of the Portuguese from Mozambique; and, from the quantity exported, it is not a little remarkable that the place of growth should have been so long unknown, or doubtful to the rest of Europe. The roots are dug up in March, but the offsets only are taken. Soon after they are dug up, they are cut into slices, strung on cords, and hung up to dry in the shade; when sufficiently dry, they break short, and are then deemed good, but, when they are soft and of a dark colour, their quality is considered bad, and not marketable. The dried root is brought to this country packed in bags, or cases. It is in transverse sections, generally about one-third of an inch in thickness, and from one to two inches in diameter.*

SENSIBLE AND CHEMICAL PROPERTIES. Calumba root is bitter, and slightly aromatic; it breaks with a starchy fracture, and is easily pulverized; when chewed, it softens and nearly dissolves in the mouth. Its smell is weak, with a very slight aromatic odour. Boiling water takes up about one-third of its weight, the infusion has the sensible qualities of the root; it is not altered by sulphate of iron, nitrate of silver, corrosive sublimate, nor by emetic tartar; but it is copiously precipitated by acetate of lead, tincture of nutgalls, lime water, and yellow cinchona bark. It gives out its virtues also to alcohol, and proof spirit, but the latter is the best menstruum. It affords an essential oil, by repeated distillation with water; the remaining decoction yields malate and sulphate of lime. M. Planche obtained from this root one-third its weight of starch, a yellow bitter resin, and a large proportion of a substance which resembled animal matter.

MEDICAL PROPERTIES AND USES. Calumba root is considered a powerful antiseptic and tonic, and also to possess some astringent

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* We are told that the root of white bryony, tinged with the tincture of calumba, has been not unfrequently substituted for this root.

properties; hence, it is recommended in diarrhœa,[*] cholera morbus, general debility, and in certain stages of phthisis; it has also been found useful in allaying nervous irritability, for strengthening the digestive organs, and for allaying the nausea and vomiting which accompany pregnancy, and in the low stage of puerperal fever.[†] It is also an excellent remedy in dyspepsia. Calumba root may be given in powder, in doses of from fifteen to thirty grains, three or four times a day; or in the form of infusion, either alone, or in combination with aromatics, opiates, neutral or alkaline salts, according to circumstances.

Off. The Root.
Off. Pp. Infusum Calumbæ, L. E.
Tinctura Calumbæ, L. E. D.

VITIS VINIFERA.

The Vine.[‡]

Class PENTANDRIA.—*Ord.* MONOGYNIA.
Nat. Ord. HEDERACEÆ, *Linn.* VITIS, *Juss.*

GEN. CHAR. *Petals* cohering at the apex, shrivelling. *Berry* five-sided, superior.

SPEC. CHAR. *Leaves* sinuous, lobed, serrated.

THE records of the Vine are as ancient as the records of the world itself, and its well known produce, wine, seems to have been coeval with the cultivation of the fruit, since we read in the Mosaic history, that "Noah began to be an husbandman, and he planted a vineyard.

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[*] By the natives of Mosambique, and also by those at a remote distance, this root is considered almost a specific for every disorder of long standing, but more especially for dysentery and venereal disorders.

[†] Vide Denman's Introduction to Midwifery, vol. ii. p. 524.

[‡] Fig. *a.* the corolla, magnified. *b.* A magnified anther. *c.* Flowers of the natu- r size.

And he drank of the wine and was drunken."* This is the first mention made of the vine in Holy Writ; but from the circumstance of Noah planting a vineyard immediately after the waters had subsided, we may conclude that the vine was an object of culture in the antideluvian world. To give to the vine "a local habitation and a name," cannot therefore be a task of difficulty. The land of Canaan, a tract of country lying between the Mediterranean Sea and the mountains of Arabia, and extending from Egypt to Phœnicia, was probably the first district where the vine was regularly cultivated;† and we may conclude that it was very soon introduced into the neighbouring country of Egypt, if, indeed, we may not consider it as indigenous to the northern parts of Asia and Africa. The precise time of its introduction into Europe is a matter of more uncertainty; but as the colonies which Cadmus carried into Thebes in Bœtia, were descended from the Canaanites, as were also the first settlers in Sicily, Sardinia, Malta, Cyprus,‡ Corfu, and Gades, or Cadiz, we may conclude that the introduction of the vine into Spain, Greece, and Italy, took place at a very early period, if, which is not improbable, it was not also of indigenous growth in the southern parts of Europe. We know, however, that among the Romans, even nearly to the time of Lucullus, wine was so scarce that they were seldom able to regale themselves with it; very little was at this time raised in Italy, and foreign wine was so dear that it was rarely produced at entertainments, and even when it was, it was only as a cordial. But in the seventh century, as Rome extended her conquests, augmented her wealth, and with it her luxury, wines became an object of particular attention. In the time of Vespasian, France was famous for its vineyards: the whole province of Narbonne was then covered with vines, and a considerable quantity of wine was exported from thence into Italy. Gaul, which during Cæsar's expedition had not a single vineyard, had numbers in the time of Strabo. The culture of the vine in England may be traced to a very early period, and was formerly very common; its introduction is ascribed to the Romans, and it is mentioned by Bede as early as the eighth century. We find from Doomsday book, that wine was made in England during a period preceding the conquest;

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* Genesis, chap. ix. 20 and 21.

† This district has gone by the successive names of Palestine, the Land of Israel, Judah, and the Holy Land, and now forms a part of Asiatic Turkey.

‡ This island was celebrated at a very early period both for the quantity of its wine, and, as it still is, for its superior quality.

and after the conquest the Bishop of Ely appears to have received three or four tuns of wine annually as tythes from the produce of vineyards in his diocese; indeed, so famous was this part of England for its vines, that in the earlier period of our history the Isle of Ely was called by the Normans the Isle of Vines. A plot of ground in London, which now forms East Smithfield and some of the adjoining streets, was withheld from the religious houses within Aldgate by four successive constables of the Tower, in the reigns of Rufus, Henry, and Stephen, and converted by them into vineyards for their own emolument. The County of Gloucester is particularly recommended by Malmesbury, in the twelfth century, as excelling the rest of the kingdom in the number and quality of its vineyards; and we find frequent mention of a tythe of wine being taken in Kent, Surry, and other counties. At the present day grapes can scarcely be considered an article of cultivation in England. Although the vine is usually found in the green-houses of the wealthy, to supply the luxuries of the table, its general cultivation for the purposes of wine no longer exists; the climate appearing no longer congenial to the growth or ripening of this delicious fruit. The vines which are now raised in the open air produce a fruit, not only poor in quality in the most favourable seasons, but requiring more than the present average degree of summer heat to bring them to any kind of maturity. This fact, among others, has induced many to think that the climate of this country has undergone a progressive diminution of temperature. The vine may at present be considered a native of most of the temperate climates of the four quarters of the globe, and Asia, Africa, America, and Europe, all produce their wines: the last, however, far exceeding the other three in quantity, quality, and variety.

The vine has a slender, twisted, climbing stem, covered with a rough dark brown fibrous bark, and sends off numerous long slender climbing branches; the leaves are generally three-lobed, sinuated, deeply serrated, and stand alternately on long footstalks; the flowers small, produced in spikes, and are attended by spinal tendrils, which cling very tenaciously to other bodies; the calyx is very minute, and is divided into five small narrow segments; the petals are five, small, oblong, of a greenish-white, adherent at their apices, withered in their appearance, and soon fall off like a little cap from the anthers, which then shed their pollen; the filaments are tapering, and furnished with simple anthers; the germen is egg-shaped, without any style, but supplied with a cylindrical stigma; the fruit is a succulent, globular berry, one-celled, sometimes containing five seeds, but more generally only two, which are hard, and irregular in their form. The flowers appear in June and July. From the effects of culture, and difference of soil and climate, numerous varieties of grapes are produced, differing very much in shape, colour, size and taste, and affording, as it is well known, a very great variety of wines. That which is called the Alexandrian Frontiniac yields the best grapes for eating, and the Syrian the largest bunches. In some of the islands of the Greek Archipelago, grapes are found weighing from thirty to forty pounds the bunch. The Syrian grape in this country has produced bunches weighing nineteen or twenty pounds; and there is a grape cultivated in Madeira as a dessert fruit, the clusters of which sometimes weigh twenty pounds.

QUALITIES OF GRAPES. The unripe fruit has a harsh, rough, sour taste; but when recent, and fully ripe, it has an agreeable, cooling, sweet, subacid taste. It contains water, sugar, mucilage, jelly, albumen, gluten, tannin, super-tartrate of potass, tartrate of lime, phosphate of magnesia, muriate of soda, sulphate of potass, and tartaric, citric, and malic acids; besides a mucoso-saccharine principle, on which, according to Chaptal and Proust, the fermentative process in bruised grapes depends.

MEDICAL PROPERTIES AND USES. Vine leaves called *pampini*, and the tendrils or *capreoli*, have an astringent taste, and were formerly used in diarrhœas, hemorrhages, and other disorders requiring refrigerant and styptic medicines. The juice or sap of the vine, called *lachryma*, has been recommended in calculous disorders, and as an application to weak eyes, and specks on the cornea; the expressed juice of the unripe fruit, called verjuice, was much esteemed by the ancients, but the use of it is now superseded by lemon juice; verjuice however, is still employed on the continent, as an external application in bruises and sprains, and is considered very useful. The dried fruit, or *uvæ passæ* of the pharmacopœias, was formerly distinguished into *majores* and *minores*, raisins and currants; the latter is a variety of the former, being the fruit of the Vitis Corinthiaca Seuapyrena. Raisins are made from the varieties named the black raisin grape, and the white raisin grape. There are two methods of curing them; either by cutting the stalk of the bunches half through, when the grapes are nearly ripe, and leaving them on the vine until their watery part is evaporated, and the sun dries and candies them; or by gathering the grapes when ripe, and dipping them in a ley made of the ashes of the burnt tendrils, after which they are dried in the sun; those cured in the first manner are considered the best. Raisins differ from grapes chiefly in the quantity of saccharine matter being greater; they are used as agreeable lubricating ascescent sweets in pectoral decoctions, and for obtunding the acrimony of other medicines, and rendering them more grateful to the palate and stomach. They are more laxative than the fresh fruit, and are apt to prove flatulent when eaten in any quantity. Ripe grapes are cooling and antiseptic; and if taken in large quantities, laxative and diuretic. They are very useful in all cases of fever, allaying thirst and febrile heat; in bilious and putrid fevers, some cases of dysentery, and all inflammatory affections, their use is particularly indicated. In phthisis pulmonalis grapes have been strongly recommended, as an article of diet, for which, from the quantity of bland nutritious matter they contain, they seem well adapted; and some cases have come under our observation, where persons have recovered from an apparently very hopeless state of consumption, where grapes were the only medicament, and almost the only diet allowed. In Syria, the inspissated juice of ripe grapes is used in large quantities, in several febrile and inflammatory diseases. But it is in the form of wine that grapes are more particularly entitled to our attention, and we must therefore dilate somewhat on this part of our subject.

Manufacture of Wine. Wine it is well known, is the fermented juice of the grape; and the most striking peculiarity connected with it is, that from this one fruit, wines should be produced differing so much in flavour, taste, smell, and other essential characteristics. This difference depends upon many circumstances: the quality of the fruit itself, climate, soil, and the method used in conducting the fermentation. The most usual mode of making wine is, to gather the grapes when fully ripe, when they are immediately subjected to the press, by which the juice is separated from the seeds and skins: in some places the grapes are picked from the stalks before they are pressed; this is the case at Madeira, where every kind of grape which the island produces, except the Malmsey and the Sercial, are pressed together to make that excellent wine. In other places, and indeed more generally, the grapes are pressed with the stalks, just as they come from the vine. The wine of Chio, so much esteemed by the ancients for its exquisite flavour and strength, is made from nearly dried grapes, as are some other wines. The expressed juice, called *must*, is placed in vats, and subjected to a temperature of 70°, when the process of vinous fermentation commences; the liquor becomes turbid, an intestine motion may be observed, its temperature is increased, a scum collects on its surface, and carbonic acid gas is disengaged. After some days this activity gradually subsides, the scum and other impurities fall to the bottom, the liquor clears, having lost its saccharine taste, and is now become wine. It is then put into casks, and subsequently into bottles, in both of which an imperceptible fermentation still goes on, and which in fact is not completed until the wine attains the utmost limit of its age, and passes into the acetous fermentation. The saccharine matter, the gluten, and the vegetable acid, are the principles of the *must*, which are essential for the production of wine; and the strength and quality of the wine, depend on the quantity of the first in particular, and on the manner of conducting the fermentation; when the sugar is in too great quantity, and not completely decomposed, or the fermentation is checked, the wine retains a sweet taste; this is the case with Malaga, Frontignac, Tokay, Vino Tinto, the Malmsey wines of the Greek islands, and some others. A more proper proportion of sugar, and perfect decomposition, with a brisker fermentation, renders the wine strong and spirituous, as Port, Sherry, Madeira, and Marsala. If the quantity of sugar be small, and at the same time a deficiency of tartar in the *must*, a thin and weak wine is produced; of this nature are Claret, Hock, Rhenish, Mayne, Barsac, &c. When wine is bottled early, it becomes brisk and sparkling, which it owes to the presence of carbonic acid gas, as we see in Champagne; when the fermentation has been conducted on the skins of the grapes, the wine is rendered rough and astringent; and if the black or purple grape is used in this way, we have what is termed a red wine: to this circumstance, Port, Claret, and Burgundy, owe their dark colour; but if the juice only be fermented, white wines may be produced from coloured grapes. Bitter almonds, orris root, and some other substances are used as flavouring ingredients to the more fully fermented wines. Wine that has been too long fermented before it is put into the casks, is very apt to run into the acetous fermentation, when white lead, litharge, and deleterious oxides of lead are used to correct the acidity, forming, according to Fourcroy, a soluble, triple salt; the aceto-tartrate of lead, by uniting with the acetic and tartaric acids in the wine. Wine thus adulterated is apt to produce cholic, and other bad effects, in those who drink it; the presence of lead in wine, may be detected by dropping into it a few drops of the prussiate of potass, when a whitish precipitate will take place. Arsenic and corrosive sublimate have sometimes been used in the fining of wines, and Port wine is very frequently adulterated by the admixture of Cyder, logwood, sloes, and other ingredients.* Nitrous ether is sometimes employed to perfume wines.

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* The *manufacturing* of Port wine from Cyder, &c. is a regular branch of business in the Island of Guernsey.

Chemical and Sensible Properties of Wine. Notwithstanding the very great difference which we have noticed in the sensible properties of wine, the essential component parts of all wines are the same, or nearly so, viz. 1st, one or more acids, generally the malic, but in some the carbonic predominates, and they all contain some tartaric; 2dly, extractive matter: in old wine this is deposited with the tartar; 3dly, a volatile oil, upon which the flavour of the wine depends; and 4thly, alcohol: this last is the most important of the ingredients, and that upon which their dietetic and medical properties depend. According to the analysis of Neumann, Malmsey wine contains the greatest quantity of rectified spirit, being on an average about four ounces in the quart; and Tyrolred the least, being only one ounce and four drachms in the quart. For a more elaborate analysis of the constituents of various wines, we must refer our readers to a table in Thomson's Dispensatory; for any attempt to describe the various shades of colour, or the tastes of different wines, would be quite impossible; we shall merely say generally, that the odour of Sherry is agreeable, and slightly aromatic; the taste warm, with some flavour of the peach kernel: the taste of Port is rough and bitterish: Claret is less rough, slightly acidulous, thinner, and higher flavoured: and Hock acidulous.

Medical Properties and Uses. Medical writers have principally confined their observations to four kinds of wines, as sufficient for officinal use: these are, the Vinum Album Hispanicum, Mountain; Vinum Canarium, Canary or Sack; Vinum Rhenanum, Rhenish; and Vinum Rubrum, Red Port. At the present day, the London and Edinburgh Colleges have designated Sherry only as officinal; but all the generous wines are occasionally resorted to as medicinal agents, particularly Port, Madeira, and Claret. The general effects of wine are, to stimulate the stomach, exhilarate the spirits, warm the habit, quicken the circulation, and in large quantities to prove intoxicating, and powerfully sedative; it may likewise be considered cordial, antiseptic, and antispasmodic. These are the general properties of wine, when good, of a proper age, and taken in moderate quantity; but when new it is flatulent, debilitating, and purgative, and intoxicates much sooner. In all diseases accompanied with much debility, as typhus fever, or those of a putrid tendency, in cases of extensive ulceration, or gangrene, putrid sore throat, small pox, when attended with great debility, and symptoms of putrescency, wine must be considered a principal agent, either by itself, or in conjunction with cinchona bark and opium. In some convulsive affections, as symptomatic tetanus, chorea, and delirium, which is the consequence of nervous debility, much benefit has been derived from the use of wine.* During convalescence from severe diseases, particularly fevers, which have much debilitated the system, wine is the most efficacious, and the quickest remedy for the restoration of health and vigour. The quantity of wine to be given, and the proper time to exhibit it, must of course depend on the nature of the disease, and the state of the patient. In febrile habits, Port, Burgundy, and the stronger white wines should be avoided; but in diseases of debility, and where a tonic is indicated, these wines will prove highly beneficial. It is to be observed, that wine acts less powerfully on the system in a state of disease than during health. In convalescence from fever, and other acute diseases, we have generally found Claret the best and safest wine to give the patient: Hock and Moselle are also recommended under such circumstances; they should be taken on an empty stomach.

As an article of diet, the moderate use of good wine is strongly recommended, while it is deemed equally pernicious when taken to excess; but it is extremely difficult to draw the line of demarcation in such cases, for much must depend on the constitution, and much on the habits of the individual: a quantity of wine which would be sufficient to intoxicate and seriously injure one man, may produce no effect upon another; and again, some persons are more easily affected by the white wines, and some by red. It has been generally said, that the late Mr. Pitt was in the habit of preparing himself for any arduous or brilliant display in the House of Commons, by drinking two or three bottles of Claret; and we are told of "a man who had not retired sober to bed for twenty years, and yet lived to upwards of eighty years of age."† More wine, and of a stronger kind, may be drunk with impunity in a cold than in a hot climate: in the latter Port wine should be abstained from. In the East and West Indies, Madeira is considered the safest wine, the very thin and weak wines being more disposed to become acid in the stomach, and to produce diarrhœa.

Super-tartrate of potass, and carbonate of potass, or salt of

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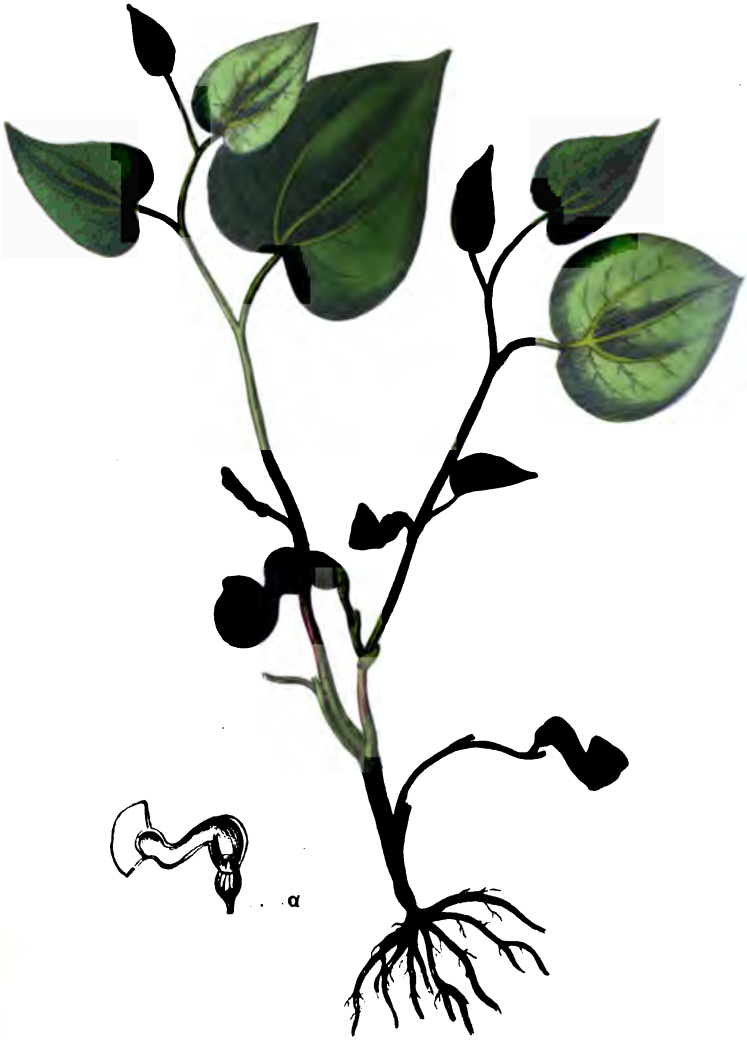
* Dr. Currie mentions a case of symptomatic tetanus, where the patient took five bottles of Madeira wine daily for some time, without producing the least symptom of inebriety, or morbidly exciting the pulse; but with the utmost advantage in allaying irritation.

† Thomson's Mat. Med.



Aristolochia Serpentaria

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tartar, are likewise officinal articles produced from the grape. The first of these salts is gradually deposited on the sides of the casks in which the wine is made, and from which it is scraped off. When taken from the cask, it is found mixed with an earthy, oily, and colouring matter; that obtained from red wine is of a deep brown colour, and commonly called red; when it is of a paler colour, it is called white tartar. It is purified by dissolving it in boiling water, and filtrating the boiling solution. This solution on cooling deposits irregular crystals, containing the colouring matter, which is separated by boiling the mass with white clay: thus purified it is called cream of tartar, and proves in some cases an useful laxative and diuretic. If this be exposed to a red heat, its acid flies off, and what remains is the vegetable alkali, or salt of tartar. This salt is frequently employed in medicine, in conjunction with other articles, particularly in making saline neutral draughts and mixtures; it is also used by itself, in doses of from gr. iii to ʒss, and in this way very frequently operates as a powerful diuretic. It should be given in a liquid form, and well diluted.

ARISTOLOCHIA SERPENTARIA.

Virginia Snake-root, Birth-wort.[*]

Class GYNANDRIA.—*Order* HEXANDRIA.

Nat. Ord. SARMENTACEÆ, *Linn.* ARISTOLOCHIÆ, *Juss.*

GEN. CHAR.—*Calyx* none. *Corolla* of one petal, strap-shaped, ventricose at the base. *Capsule* six-celled, inferior, containing many seeds. *Stem* twining, frutescent.

SPEC. CHAR. *Leaves* heart-shaped, oblong. *Stems* winding, columnar. *Flowers* solitary.

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[*] Fig. *a* represents a flower cut open.

THIS species of Aristolochia [*] is a native of North America, from Pennsylvania to Florida, flowering in May and June, and ripening its seeds in September. It was first cultivated in this country about the year 1770. In Johnson's edition of Gerarde's Herbal, we are told that it was brought from Virginia, and was cultivated in the garden of Mr. J. Tradescant, of South Lambeth, in 1632, but there is some doubt if it was the species that affords the officinal root.

The root of the Serpentaria is perennial, and consists of a number of small fibres, proceeding from a common trunk; externally of a yellowish colour, (which changes to brown on drying) internally whitish; from the root rises several slender, round, crooked, jointed stems, which rise about eight or ten inches in height; the leaves are heart-shaped, entire, pointed, veined, and stand upon strong foot-stalks, to which they are attached by three prominent ribs; the flowers are monopetalous, solitary, of a purplish colour, and placed upon long sheathed peduncles, which arise from the articulations of the stem; there is no calyx; the corolla is tubular, irregular, and at the base distended into a globular form, at the middle contracted and twisted, at the extremity spreading, and of a triangular form; the anthers are sessile, attached to the under side of the stigma, which is roundish, divided into six parts, and supported on a very short style; the germen is oblong, angular, hairy, and inferior; the capsule is hexagonal, six-celled, containing several small flat seeds.

The roots of the Serpentaria are imported into this country in their dry state, in bales, containing from two to five cwt. each. We are told that the roots of the Collinsonia Præcox, and various species of Aristolochia, are frequently mixed in the packages with the genuine snake roots.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Snake root has an aromatic odour, somewhat like that of Valerian, but more agreeable; its taste is warm, bitter, and pungent. It gives out its active matter both to water and alcohol, and tinges the former of a deep yellow brown, the latter of an orange colour; the watery infusion is not altered by any of the mineral acids; sulphate of iron, or zinc, nitrate of silver, tartarized antimony, oxymuriate of mercury, or the alkalies, nor is it precipitated by tannin or gelatine. Superacetate of lead throws down a flocculent precipitate, which is not soluble in acetic acid, shewing the presence of mucus. By distillation with water

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[*] Twenty species of this genus are cultivated in our botanic gardens.—*Hort. Cant.*

[illegible]

a very small portion of a pale coloured essential oil is obtained, having the odour of the root, but with very little of its pungency, which remains in the inspissated extract. The alcoholic extract is more pungent than the watery, hence the active properties of snake root appear to reside in a bitter resin and essential oil.

MEDICAL PROPERTIES AND USES. Serpentaria root is a stimulating diaphoretic, and is supposed to possess considerable tonic and antiseptic virtues; formerly it was recommended as a medicine of extraordinary power, in counteracting the poisonous effects of the bites of serpents, but in modern practice it is chiefly employed as a sudorific, and to support the powers of the system in typhoid and putrid fevers. It has also been found to increase the power of cinchona in removing intermittents; but in fever, in which an inflammatory diathesis is present, this root is apt to prove too stimulating; and in most cases it is proper to exhibit an aperient previous to its exhibition. Snake root may be taken in substance, in doses of from ten to thirty grains once in four or six hours; or in the form of the watery infusion, made by macerating half an ounce of the bruised root in six ounces of boiling water for two hours; of the strained liquor, one or two ounces may be taken four or six times in the twenty-four hours.

Off. The Root.
Off. Pp. Tinctura Serpentariæ, L. E. D.

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AMYRIS GILEADENSIS.

Balsam of Gilead Amyris.[*]

Class OCTANDRIA.—*Order* MONOGYNIA.
Nat. Ord. TEREBINTACEÆ, *Juss.*

GEN. CHAR. *Calyx* four-toothed. *Petals* four, oblong. *Stigma* four-corned. *Berry* drupaceous.

SPEC. CHAR. *Leaves* ternate, entire. *Peduncles* one-flowered, lateral.

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[*] Fig. *a.* represents the fruit.

to any great height; that the trunk is small, and covered with a greyish bark; the leaves are petioled, ternate or pinnate, and stand opposite on the branches; the leaflets are stiff, pointed, shining, of a bright green above, and downy underneath; the flowers are small, in terminal corymbs, and white; the petals are inflex at their tips; the fruit is the figure of an olive.

The resin is obtained by making incisions in the bark in dry weather, especially at the full of the moon; the resinous juice flows from the incisions, and is left to harden in the sun. Elemi was originally brought to Europe from Turkey or Ethiopia, in long roundish masses of two or three pounds weight, wrapped up in palm leaves; but the Elemi of the shops is now chiefly imported from the warm provinces of America, and comes in large masses, enclosed in tin cases or mats: this variety is said to be softer than the Turkey.

Sensible Qualities, &c. Elemi when unadulterated has a fragrant odour; its taste is slightly bitter, somewhat aromatic and pungent. The masses are semi-transparent, of a pale yellow colour, somewhat brittle on the outside, tenaceous and soft within. When heated, it melts and boils, emiting the smell of frankincence; in the flame of a candle it takes fire, and burns with a bright smoky flame, leaving a small portion of coal. Sp. gr. 1.0182. Distilled with water it yields one-sixteenth of essential oil, nearly limpid, somewhat hot to the taste, and of a stronger odour than the elemi; the remaining resin is scentless. Alcohol dissolves the greater part: the solution is lemon colour; the residue is a white matter, soluble in water. According to the analysis of M. Bonastre, the components of American Elemi are, 60 parts transparent resin, soluble in alcohol at 60°; 24 of a resinoid substance, soluble in boiling alcohol, and deposited on cooling, white, opaque, and incapable of forming a soap with caustic ley; 12.5 parts of volatile oil; 2 of bitter extractive; and 1.5 of acid and impurities.

Medical Properties and Uses. Elemi is stimulant and aromatic, but is seldom or never prescribed internally. Formerly it was much used (when made into an ointment) as a mild digestive to ulcers; but the improved practice of surgery in the treatment of ulcers, has superseded the use of this and similar applications.

Off. The Resin.
Off. Pp. Unguentum Elemi Compositum, L.D.

MELISSA OFFICINALIS.

Common Balm *

Class DIDYNAMIA.—*Order* GYMNOSPERMIA.

Nat. Ord. VERTICILLATÆ, *Linn.* LABIATÆ, *Juss.*

GEN: CHAR. *Calyx* dry, nearly flat above. *Corolla* upper lip somewhat arched, bifid; lower lip with the middle lobe cordate.

SPEC. CHAR. *Racemes* axillary, verticeled. *Pedicles* simple.

THIS species of balm† is a native of the south of Europe, delighting in mountainous situations. It was cultivated in Britain by Gerarde, previous to 1596, and is now common in most of our gardens, where it is propagated for medicinal purposes, or to entice bees, they being particularly fond of it.

Common balm is a hardy perennial plant, flowering from July to September; the root is fibrous, and sends up many annual stems, which are erect, quadrangular, smooth, branched, and rise from two to three feet in height; the leaves are cordate, deeply serrated, rough, veined, of a bright green colour, and placed opposite in pairs; the upper ones nearly sessile, the lower ones on longish footstalks; the flowers arise in semi-worls at the alæ of the leaves, and stand upon slender peduncles, at the base of which are small, oblong, serrated, hairy bractæ; the calyx consists of one pentangular leaf, divided at the brim into two lips; of these the upper is the largest, and divided at the extremity into three segments, the lower shorter, and cut into two acute teeth; the corolla is monopetalous, bilabiated, tubular, and of a yellowish white colour; the upper lip shorter, and notched at the apex, the lower one three-cleft; the filaments are furnished with oblong anthers; the germen divides into four parts, from the centre of which rises a long slender style, crowned with a cleft stigma; the germen becomes four ovate seeds, which are lodged at the bottom of the calyx.

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* Fig. *a*. the corolla cut open to shew the anthers. *b*. The pistillum.

† It is not satisfactorily ascertained by what name this plant was known to the ancients; by some it is supposed to be the Μελισσοφυλλον or Μελιτταινα of Dioscorides.

SENSIBLE QUALITIES, &c. The herb, in its recent state, has a weak aromatic, and somewhat astringent taste; its smell is agreeable, with a slight odour of lemons, which is lost by drying. In distillation with water, it yields a very small portion of essential oil, of a grateful flavour, and of a pale yellowish colour; the watery infusion has a roughish taste, and slightly reddens litmus paper; and affords with nitrate of silver a deep brown, and with acetate of lead a greenish white precipitate.

MEDICAL PROPERTIES AND USES. Balm was formerly held in great estimation,* but in modern practice (although gently stimulant and diuretic), it is seldom employed but in the form of the watery infusion, and given as a diluent in febrile disorders. In this way it may be taken *ad libitum*, either alone, or acidulated with the juice of oranges or lemons, when it forms a very grateful drink.

Off. The Herb.

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HYSSOPUS OFFICINALIS.

Common Hyssop.

Class, Order, Nat. Ord. same as preceding article.

GEN. CHAR. *Corolla* lower lip three-parted, with a small intermediate subcrenate segment. *Stamens* straight, distant.

SPEC. CHAR. *Spikes* one ranked. *Leaves* lanceolate.

THIS species of hyssop is a native of Siberia, and the mountainous parts of Austria; it has been cultivated in England since 1596,† and is now common in most of our gardens. The root is perennial,

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* By the Arabian physicians it was considered almost an infallible remedy for the cure of every disorder; and even Boerhaave and Hoffmann deemed it an efficacious remedy. Simon Paulli, and others, considered it possessed of emenagogue properties.

† Vide Hort. Kew.

knobbed, woody, and furnished with many long fibres; the stalk shrubby, much branched, and rises about two feet in height; the leaves are about an inch in length, narrow, entire, and obtusely pointed, and stand sessile in pairs upon the branches; the flowers are produced in short verticillated spikes, chiefly on one side, and terminating the branches; the calyx is tubular, striated, and divided at the brim into five pointed segments; the corolla is of a violet colour, monopetalous, and consists of a narrow tube, which divides at the limb into two expanded lips; the upper is short, roundish, and notched at the apex; the lower lip is divided into three segments, of which the undermost is large and inversely heart-shaped; the filaments are crowned with simple anthers; the style is slender, and supports a double stigma; the germen becomes four seeds, situated at the bottom of the persistent calyx.

The hyssop mentioned in sacred history, is supposed to be the *Zufe* or *Cyfe* of the Arabians, and not the plant here described; nor is it satisfactorily ascertained whether the officinal hyssop be either the *Esof* of the Hebrews, or the ύσσωπος of the Greeks; but it is generally considered to be neither one nor the other.

SENSIBLE QUALITIES, &c. The leaves of hyssop have an aromatic odour, and a moderately warm and slightly bitter taste; these qualities depend upon a small portion of volatile oil which they contain, and which may be obtained by distillation with water; the oil is of a pale yellow colour, and very pungent, with the odour of the plant; the alcoholic tincture where inspissated, leaves a very warm, pungent bitter extract, with the odour of camphor.

MEDICAL PROPERTIES AND USES. Hyssop is both tonic and stimulant, hence it has been considered emmenagogue and antihysteric; it has also been recommended as a vermifuge, but it has chiefly been employed as a pectoral in humeral asthma, coughs, and other catarrhal affections. In modern practice, however, it is seldom or never employed, its stimulant properties rendering it a doubtful remedy in the last named diseases, and its tonic powers being scarcely worthy of notice. Formerly it was much used as an external application, in the form of fomentation, in contusion and for removing the blackness occasioned by bruises; for these purposes it is still held in great repute by the uninformed country people.

Off. The Herb.

BONPLANDIA TRIFOLIATA.

*Three-leaved Bonplandia.**

Class PENTANDRIA.—*Order* MONOGYNIA.

Nat. Ord. SIMARUBEÆ, *Decand.* QUASSIÆ, *Juss.*

GEN. CHAR. *Calyx* monophyllous, bell-shaped, five-toothed. *Corolla* of five petals, cohering near the base, funnel-shaped.

THE BONPLANDIA TRIFOLIATA is a native of South America, growing abundantly in the woods, near the eastern bank of the Carony, at the foot of the hills that surround the missions of Capassui, Alta Græcia and Upata: it also grows west of Cumana, in the Gulf of Santa Fe and Neuva Barcellona. The bark of this tree is known in commerce under the names of Cusparia and Angustura; the latter of which it derived from Angostura, and the former, probably, from Capassui, from whence it is collected.

The Bonplandia Trifoliata is an elegant evergreen tree, rising to the height of from sixty to eighty feet; the trunk is cylindrical, branching towards the summit, and covered with a grey-coloured bark; the branches are numerous, alternate, and the upper ones spread nearly horizontally; the leaves arise alternately on the branches, are about two feet long, independent of the petiole, and composed of three oblong, ovate leaflets, pointed at each extremity, and attached to a common petiole from ten to twelve inches in length, and channelled; the flowers are produced in a terminal raceme, composed of alternate peduncles, bearing from three to six flowers each; the calyx is inferior, persistent, five-toothed, and tomentose; the corolla is funnel-shaped, composed of five petals, so united below as to appear as one tube, with a five-cleft spreading border; the nectary consists of five glandular bodies, covering the base of the germen; the stamens are shorter than the petals; the filaments are white, and support yellow anthers; the pistil is formed

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* Fig. *a.* the germen and style. *b.* The germen further advanced to maturity. *c.* An anther. *d.* The calyx and bractæ. *e.* The corolla of the natural size, spread open to shew the anther.—The drawing represents the flowers about two-thirds of their natural size, and the leaves one-third.

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[illegible] consists of [illegible]

[illegible] which, and support yellow [illegible]

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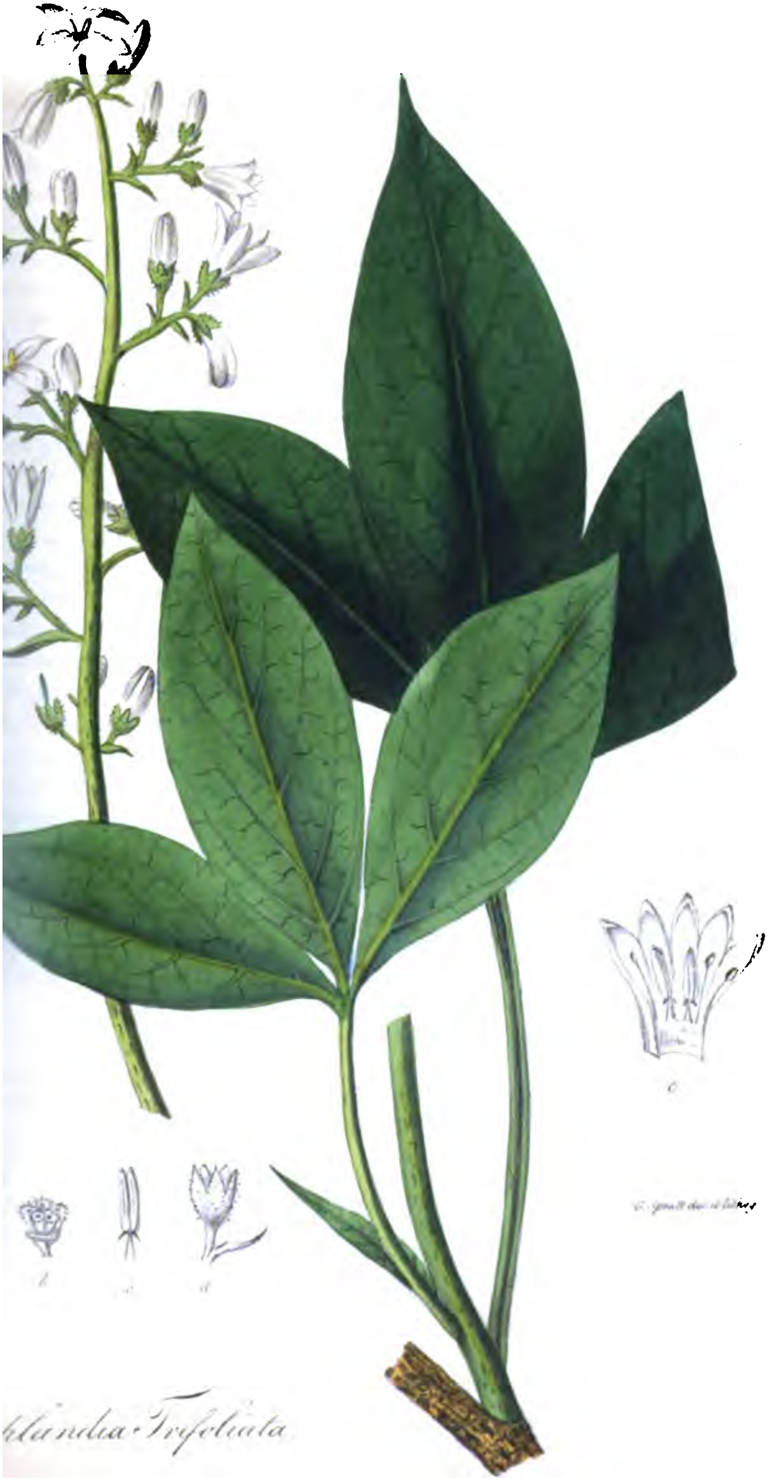
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landia Trifoliata

of five oval, hairy ovaries, with a single style, supporting five fleshy green stigmas; the fruit consists of five oval, bivalve capsules, each containing a single seed.[*]

Cusparia or Angustura bark was formerly supposed to be the product of a tree growing in Africa, or the Spanish West Indies, and the first parcels of bark were imported from St. Domingo; but the travels and discoveries of Humboldt and Bonpland have led to the knowledge of the true place of its growth. The generic name given to this tree was imposed by Willdenow in honour of Bonpland, and since adopted by Humboldt.[†]

SENSIBLE AND CHEMICAL PROPERTIES, &c. Genuine Angustura or Cusparia bark, as it comes to market, has a peculiar, but not very powerful odour; its taste bitter, somewhat aromatic, and rather permanent, when chewed leaving a sense of heat and pungency in the mouth and throat. Externally the pieces are covered with a greyish wrinkled epidermis; internally the surface is smooth, and of a yellowish brown colour; it breaks with a close, short, resinous fracture, and is easily pulverized. The powder, when triturated with lime or calcined magnesia, emits a smell of ammonia. It yields its active matter both to hot and cold water; the watery infusion precipitates infusion of galls, and yellow cinchona, and is precipitated by sulphate of iron, tartarized antimony, sulphate of copper, acetate of lead, oxymuriate of mercury, and pure potass, but it does not precipitate gelatin; sulphuric acid gives the infusion a brown colour, and gradually a lemon-yellow precipitate is deposited; nitric acid deepens the colour of the infusion to a blood-red, and after some time produces a lemon-coloured precipitate; the muriatic acid does not effect it. The alcoholic tincture reddens litmus paper, and becomes milky on the addition of water; sulphuric ether takes up one part from ten of the powder, and when evaporated on water leaves a greenish-yellow acid resin, and renders the water milky; by distillation with water, the bark yields a small portion of a white essential oil; hence it appears, that Cusparia bark contains *resin*, a peculiar variety of *extractive*, *carbonate of ammonia*, *and essential oil*.

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[*] Dr. Hancock, who traversed repeatedly, and resided during several months in the missions of Carony, where he had an opportunity of seeing many thousands of the trees which produce the Angustura bark, says, that it seldom or never exceeds the altitude of twenty feet, the usual medium being about twelve or fifteen feet. The diameter of the trunk, which is tolerably erect, is from three to five inches. The parts of fructification also differ very materially from Humboldt's description. We would recommend our readers who may feel interested upon the subject, to read the doctor's scientific paper on the subject in the first number of the Medico-Botanical Transactions.

[†] The London College, in their Materia Medica, still retains the name originally given to this tree by Humboldt, viz. Cusparia Febrifuga.

MEDICAL PROPERTIES AND USES. Genuine Angustura bark is tonic and stimulant. It was originally introduced as a febrifuge in intermittents, and was supposed to be superior to the Peruvian barks, but subsequent experience has proved it to be greatly inferior to the latter for the cure of intermittents; yet it is a medicine possessed of very considerable powers, and may be exhibited in most diseases, in which a general tonic is indicated. Dr. Hancock, who had many opportunities of witnessing the effects of the bark, says, "I am fully convinced, from ample experience of the virtues of this bark, that it is one of the most valuable febrifuges we possess, being adapted to the worst and most malignant bilious fevers, while the fevers in which cinchona is chiefly administered, are simple intermittents for the most part, unattended with danger." The bark may be given in substance, in powder, from one scruple to one drachm, or in the form of tincture or infusion, either alone, or in combination with other medicines. In large doses it is apt to produce nausea, in whatever form it may be exhibited.*

Off. The Bark.
Off. Pp. Infusum Cuspariæ, L.
Tinctura Cuspariæ, E. D.

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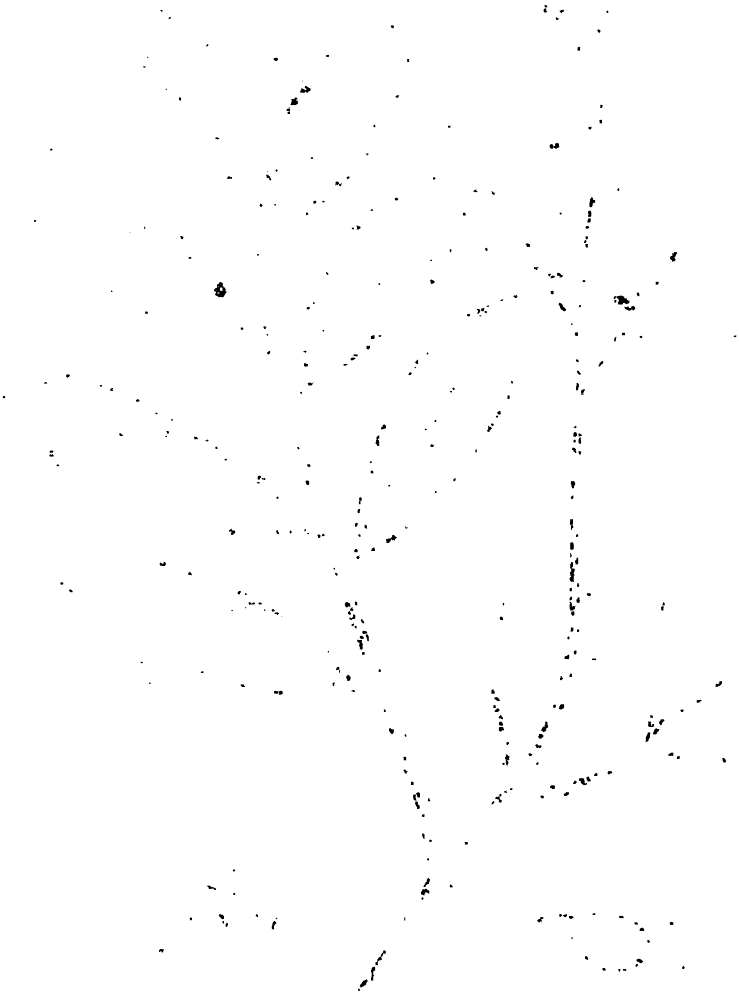
* A species of bark, in some respects resembling the genuine Angustura bark, has lately been introduced on the continent. Planche, who chemically examined it, named it Angustura Ferruginea. This bark is possessed of deleterious properties; when chewed it excites a very acrid sensation, and leaves a very nauseous bitter taste in the mouth and throat. From experiments made by Orfila, (vide Toxicology, vol. ii.) on animals, it appears to be a very energetic poison. The deleterious property of this bark appears to reside in a peculiar alkali, (named Brucine.) This bark may be distinguished from the genuine Angustura bark, by its greater thickness and weight, and by the epidermis being of a brownish olive colour, and warty. By macerating the powder in very diluted muriatic acid, it becomes of a very beautiful green, owing to the iron contained in the cuticle of the bark.



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QUASSIA SIMARUBA.

Simaruba Quassia, Mountain or Bitter Damson.[*]

Class DECANDRIA.[†]—*Order* MONOGYNIA.

Nat. Ord. GRUINALES, *Linn.* MAGNOLIÆ, *Juss.*

GEN. CHAR. *Calyx* five-leaved. *Petals* five. *Nectary* five-leaved. *Drupes* five, distant, bivalve, inserted into a fleshy receptacle.

SPEC. CHAR. *Flowers* monœcious. *Leaves* abruptly pinnate. *Leaflets* alternately petiolate. *Petioles* smooth. *Flowers* in panicles.

THE bark of this tree was first sent to France from Guiana, in 1718, as a remedy of great efficacy in dysentery, and an epidemic flux prevailing very generally in Paris, and other parts of France, a very few years after, it was employed with great success in arresting the progress of the disease, and from this circumstance its medicinal character was first established in Europe. But it was not for a considerable time after, that the botanical characters of the tree were ascertained; and by Linnæus it was at first supposed to be the Pistacia Foliis Pinnatis Deciduiis, while in the second edition of his Species Plantarum, it is mentioned as the Bursera Gummifera. In 1775 and 1776, specimens of the fructification, accompanied by botanical descriptions, were sent from Jamaica to Dr. Hope of Edinburgh, and Dr. John Fothergill of London; and the investigations of these and other botanists, led to the tree being assigned to the genus Quassia:[‡] subsequently, a plant of this species was introduced into the Royal Garden at Kew, through the skill and industry of Mr. Alexander Anderson.

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[*] Fig. *a.* an antler. *b.* A female flower. *c.* A male flower. *d.* The fruit.

[†] This tree seems rather to belong to the class *Monœcia*, having its male and female flowers distinct on the same plant; it has however been placed in the class *Decandria*, from those affinities which bring it under the genus Quassia, which last belongs to the class Decandria.

[‡] So called after a negro of Surinam, who first communicated to Dr. Rolander, a Swede, the virtues of the Quassia Excelsa, which he had employed with great success in the cure of the malignant fevers of that country.

The Quassia Simaruba is a native of South America, South Carolina, and the West India Islands, in which latter it is known by the name of mountain damson. It is usually found in sandy places, growing to a considerable height and thickness, and sending off alternate spreading branches. The bark of the old trees is black, and a little furrowed, but that of the younger trees is smooth, grey, and here and there marked with broad yellow spots; the wood is hard, white, and without any remarkable taste; the leaves are numerous, pinnate, and stand alternately on the branches; the leaflets, which vary in their number, are elliptical, smooth on the upper side, and of a deep green colour, beneath whitish, and stand alternately on short footstalks; the flowers, which are of a yellowish colour, are placed on branched spikes, or long axillary panicles, supporting both male and female flowers; though, according to Dr. Wright, the female flower is never found at Jamaica, on the same tree which produces the male flower; the calyx on both flowers is small, monophyllous, and cut into five obtuse, erect segments; the petals of the corolla are five, sessile, equal, lance-shaped, and about triple the length of the calyx, into which they are inserted; the nectarium consists of ten oval hairy scales, inserted at the base of the filaments; the stamina are ten, slender, equal, the length of the corolla, and furnished with long anthers; the receptacle is a fleshy substance of an orbicular shape, marked with ten furrows. The female flower is furnished with five roundish germens, adhering together; the style is erect, cylindrical, about the length of the corolla, and divided at the top into five recurved persistent stigmas; the fruit is an oval, black, smooth, fleshy, soft pulp; the number of these is five on each common receptacle, but seldom more than three of them arrive at perfection, when they each contain an oblong, pointed nut, with a flattish kernel; the flowers appear in April.

SENSIBLE QUALITIES. The Cortex Simarubæ of the shops is the bark of the roots of this tree; it is rough, scaly, and warted; the inside when fresh is a bright yellow, but when dry, paler; it has little smell, taste bitter, but not disagreeable. Macerated in water or rectified spirits, both menstrua become quickly impregnated with its taste and colour; boiling water seems to act less upon it than cold, the cold infusion being stronger than the decoction; this last is of a transparent yellow colour while hot, but grows turbid and of a reddish brown as it cools. According to the analysis of

MM. Morin and Rœun, the components of Simaruba bark are resin, a peculiar bitter principle, which they have named *Quassine*, malic and galic acids, acetate of potass, malate and oxalate of lime, oxide of iron, alumen, an ammonical salt, and a volatile salt, having the odour of Benzoin.

Medical Properties. Simaruba bark has never been generally employed in this country, as a remedial agent in the treatment of those diseases by which it was first brought into notice, and at the present day it is more than ever disregarded. Dr. Wright says, that in fluxes it restores the lost tone of the intestines, allays their spasmodic motions, promotes the secretions by urine and perspiration, disposes the patient to sleep, removes gripes and tenesmus, and brings the stools to their natural colour and consistence. Sir John Pringle, Dr. H. Saunders, and several others, prescribed this bark in old and obstinate dysenteries and diarrhœas, particularly those brought from warm climates; and fluxes of this sort, which were brought home from the sieges of Martinico and the Havannah, were speedily cured by it. Dr. Lind, of the Naval Hospital at Haslar, considered the bark to be most efficacious when given in such quantity as to nauseate the stomach. Dr. Wright recommends two drachms of the bark to be boiled in twenty-four ounces of water to twelve; the decoction is then to be strained and divided into three equal parts, which may be taken in the twenty-four hours; and when the stomach is reconciled to it, the quantity of bark may be increased to three drachms; aromatics, or a few drops of tincture of opium may be added to this decoction. But some more modern practitioners have found that this medicine is only successful in the third stage of dysentery, where there is no fever, where the stomach is unimpaired, and where the gripes and tenesmus are only continued by a weakness of the bowels; in these cases, Dr. Monro gave two or three ounces of the decoction every five or six hours, with four or five drops of tincture of opium, and found it a very useful remedy. The Simaruba bark has also been recommended as an excellent remedy in fluor albus. It is usually given in the form of infusion, but may be taken in substance from one scruple to thirty or forty grains.

Off. The Bark of the Root.
Off. Pp. Infusum Simarubæ, L.

QUASSIA EXCELSA.

Quassia Tree.

For *Class*, *Order*, *Nat. Ord.* and GEN. CHAR. see preceding Article.

SPEC. CHAR. *Flowers* hermaphrodite. *Leaves* pinnate, minating in an odd one. *Flowers* in racemes.

THIS species of Quassia is a native of the Caribbean Surinam, and Jamaica, flowering in October and November. a handsome tall tree, rising sometimes to the height of one feet; the trunk is straight and tapering, covered with smooth coloured bark; the leaves are pinnate, consisting of from eight pairs of pinnæ, with a terminal one; the leaflets are and pointed, with reddish nerves; the young leaves are with a fine brownish coloured down; the flowers are produc clusters from the lower part of the last year's shoot; they are of a yellowish green colour; the fruit is a small round black the size of a pea, and is ripe in December; it is not bitter. wood is brought to this country in billets, about the thickness man's arm; it is very light and whitish, but becomes yellow by sure to the atmosphere.

SENSIBLE AND CHEMICAL PROPERTIES. Quassia no sensible odour, but its taste is intensely bitter. The infusion, decoction, and alcoholic tincture, are all equally they are of a yellowish colour, and are not altered by tartarized antimony, nor gelatin. The infusion is rendered by nitrate of silver, a soft flaky yellow precipitate being acetate of lead occasions a copious white precipitate.

MEDICAL PROPERTIES AND USES. Quassia is tonic,* and may be given in all cases where bitters are has been found efficacious in intermittents and bilious [illegible] leucorrhœa, cachexy, [illegible]

QUASSIA EXCELSA.

Quassia Tree.

For *Class*, *Order*, *Nat. Ord.* and Gen. Char. see preceding Article.

Spec. Char. *Flowers* hermaphrodite. *Leaves* pinnate, terminating in an odd one. *Flowers* in racemes.

This species of Quassia is a native of the Caribbean Islands, Surinam, and Jamaica, flowering in October and November. It is a handsome tall tree, rising sometimes to the height of one hundred feet; the trunk is straight and tapering, covered with smooth grey coloured bark; the leaves are pinnate, consisting of from five to eight pairs of pinnæ, with a terminal one; the leaflets are oblong and pointed, with reddish nerves; the young leaves are covered with a fine brownish coloured down; the flowers are produced in clusters from the lower part of the last year's shoot; they are small, of a yellowish green colour; the fruit is a small round black drupe, the size of a pea, and is ripe in December; it is not bitter. The wood is brought to this country in billets, about the thickness of a man's arm; it is very light and whitish, but becomes yellow by exposure to the atmosphere.

Sensible and Chemical Properties. Quassia wood has no sensible odour, but its taste is intensely bitter. The watery infusion, decoction, and alcoholic tincture, are all equally bitter; they are of a yellowish colour, and are not altered by chalybeates, tartarized antimony, nor gelatin. The infusion is rendered muddy by nitrate of silver, a soft flaky yellow precipitate being formed; acetate of lead occasions a copious white precipitate.

Medical Properties and Uses. Quassia is considered tonic,* and may be given in all cases where bitters are proper. It has been found efficacious in intermittents and bilious fevers, in stomachic complaints, chlorosis, leucorrhœa, cachexy, diarrhœa, and

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* We are told by Dr. Duncan, that it evidently possesses some narcotic power, from its being used to poison flies; (Edinburgh New Dispensatory) it certainly destroys them, but whether from its narcotic or bitter principle, is doubtful.—*Ed.*

gout. The watery infusion is the best form of administering the drug; it may be given alone, or in combination with aromatics, acids, or other medicines suited to the disorder. Quassia is sometimes given in powder, but it cannot be sufficiently pulverised to admit of being conveniently given in substance; it is also administered in the form of tincture and extract. Quassia is said to be much used by the brewers instead of hops, but the beer does not keep so well as when hops are used.

Off.	The Wood of Quassia.
Off. Pp.	Infusum Quassiæ, L.
	Tinctura Quassiæ, E. D.

◆

SACCHARUM OFFICINARUM.

Common Sugar Cane.[*]

Class TRIANDRIA.—*Order* DIGYNIA.

Nat. Ord. GRAMINA.

GEN. CHAR. *Calyx* two-valved, enveloped *in long wool. Corolla* two-valved.

SPEC. CHAR. *Leaves* entire, smooth. *Panicle* loose. *Calyx* lanceolate, naked, except at the base.

THE common sugar cane is a native of Africa and Lower Asia; it is also supposed to be indigenous to America, but this point appears to be undecided, some asserting that it is an undoubted native of the American continent, whilst others affirm that it was unknown in those regions till Europeans possessed it; however this may be, it has now been extensively cultivated in the West Indies for upwards of three hundred years;[†] and although the sugar cane grows abundantly in the East Indies, Persia, Brazil, and the Canary Islands, the greater part of the sugar consumed in Europe is the product of the West India Islands.

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[*] Fig. *a.* and *b.* represent the flower in different stages.

[†] Mr. Loudon, in his Encyclopædia of Agriculture, p. 111, informs us that the sugar cane has been cultivated upwards of seven hundred years in Spain.

The sugar cane is a perennial plant; the root is knotted and fibrous, from which spring several simple, jointed, smooth, round stems, rising to the height of ten or eighteen feet; the leaves are lanceolate, three or four feet in length, and from two to three or four inches in breadth, and arise singly from the joints, embracing the stems; the flowers are small, and produced in a terminal loose panicle, two or three feet in length, and composed of subdivided spikes, with long flexuose down, which conceals the flowers, and hides them from the sight; the calyx or gluma is of two valves, which are oblong, or lance-shaped, pointed, erect, concave, and equal; the corolla is composed of two valves, shorter than the calyx, and of a fine delicate texture; the filaments are three, capillary, longer than the corolla, and bear long yellow anthers; the germen is oblong, and supports two feathery styles, terminated by plumose stigmas; the seed is oblong, pointed, and is invested in the valves of the corolla.

The plant above described affords the sugar in common use, but there are several vegetables which secrete a sweet or saccharine juice, easily convertible into sugar. The Arundo Bambo distils from its joints a fluid, which, by the heat of the sun, concretes into sugar, and is collected for use; from the Acer Saccharina, a species of maple, a considerable quantity of sugar is annually obtained in America; and the inhabitants of New Spain procure sugar from the Agave Americana; sugar may also be obtained from the Asclepias Syriaca, Zea Mays, Heracleum Syphondylium, Fucus Saccharinus, and from the roots and fruit of many other plants. In the West Indies the sugar cane is propagated by cuttings of the stalk, taken from near its top, and laid horizontally in the ground: it requires a rich fertile soil; that composed of alluvial matter, mixed with clay and sand, produces the greatest number of shoots: good land is said to furnish five crops of shoots without transplanting. In Jamaica, and the other West India Islands, the canes are cut for the purpose of making sugar, between the sixth and thirteenth month of their growth, when the stems have acquired from seven to twelve feet in height, which usually takes place in the months of February, March, and April. As soon as they are cut, the canes are stripped of their leaves, and crushed between iron cylinders, to express the juice, which is received into large leaden vessels, called receivers; from thence it is removed into large coppers, named clarifiers, where it is mixed with lime, in the proportion of one pint of lime to one hundred gallons of juice, and heated to the temperature of 140.° A thick scum soon forms on the top, from under which the clear liquor is drawn off, by a cock, into a large copper boiler, where it is briskly boiled till the bulk of the liquor is very considerably diminished. The boiling is successively repeated in four other progressively smaller coppers, and from the last, removed into shallow wooden coolers, where it crystallizes; it is then put into hogsheads, having holes at the bottom, into which the stalk of a plantain leaf is thrust. Through these holes the molasses drain off, and the process is finished. In this state the sugar is imported into Europe, under the name of raw or muscovada sugar. The loaf, or refined sugar is prepared in Europe, by first grinding the raw sugar, then dissolving it in lime water, and clarifying with bullock's blood; the liquid is then boiled down to a proper consistenee, the impurities being skimmed off as they rise, and poured into conical earthen vessels, where it is allowed to drain, and any uncrystallizable impure syrup which may remain, runs through the perforated apex of the cone. To obtain the purer sorts of leaf sugar, the loaves are re-dissolved and heated a second time, when it obtains the name of refined sugar, and fetches a proportionably higher price.

SENSIBLE AND CHEMICAL PROPERTIES. Raw sugar has a strong sweet taste, and a slight but peculiar odour; refined sugar is inodorous, and proportionably milder in taste, and when two pieces are struck together in the dark, emits a vivid phosphoric light. Raw sugar is in concrete masses, consisting of small irregular crystals, of a yellowish colour. Sugar is soluble in its own weight of cold water, it is also soluble in alcohol, and the solution affords crystals on evaporation. According to Berzelius, 100 parts of sugar in its ordinary state, contains 5.3 of water. Oils readily combine with sugar, and the mixture is miscible with water. Lime and the fixed alkalies unite with sugar, and form compounds, without any sweetness of taste. The concentrated mineral acids decompose and dissolve sugar, but the weaker simply dissolve it; and many of the vegetable acids when united to it prevent it from crystallizing. The hydro-sulphurets, sulphurets, and phosphurets decompose sugar, and convert it into a substance bearing a great resemblance to gum. When exposed to heat, it melts, swells, and becomes black. When sugar is boiled with peroxide of mercury and acetate of copper, these salts are converted into protoxides; oxymuriate of mercury is converted into calomel, and sulphate of copper and nitrate of mercury are reduced to a metallic state. According to the analysis of

Thenard and Gay Lussac, 100 parts of sugar contain oxygen 50.63, carbon 42.47, hydrogen 6.90. Lavoisier gives 64 oxygen, 28 carbon, and 8 hydrogen, in 100 parts.

MEDICAL PROPERTIES AND USES. Raw sugar is laxative, but can scarcely be considered as a medicine; as an article of diet it is in general use, and has been thought to increase corpulence: others however imagine it to have a contrary effect, and say that, from the acid it contains, it rather tends to emaciate than to fatten the body; Boerhaave was of this opinion. Mr. John Hunter, however, recommended sugar, as the best restorative to those who were much debilitated by a long course of mercury. That sugar affords a considerable share of nourishment, both in its crude state, and combined in various vegetable matters, admits of no question. We are told that those animals which wholly feed upon it in the sugar islands, become remarkably corpulent; and that the negro children, whose diet is confined to molasses for a season, are distinguished from others by their superior bulk. Sugar however, when taken in immoderate quantities, lays the foundation of many complaints, by imparing the digestive powers: and to those afflicted with dyspeptic and bilious complaints, it generally proves hurtful; but is an useful antiseptic in scurvy. Sugar is said to prove deleterious to various kinds of worms, hence it is recommended to those afflicted with them. In a remedial point of view, the most important use to which sugar has been applied, is as an antidote to the poison of verdigris; it must be taken in large quantities, both in its solid state and dissolved in water. It is supposed to act chemically on the poison, and at the same time to increase the peristaltic action of the intestines. Sugar has also the property of preserving animal and vegetable substances from decay and putrefaction; hence it is often employed for those purposes, viz. in preparing conserves, sweetmeats, &c.

Off.	Raw and Refined Sugar.
Off. Pp.	Confectiones omnes, L.
	Syrupi omnes, L. E. D.
	Trochisci omnes, E.

[illegible]

PTEROCARPUS SANTALINUS.

Red Sanders Tree.[*]

Class DIADELPHIA.—*Order* DECANDRIA.

Nat. Ord. PAPILIONACEÆ.

GEN. CHAR. *Calyx* five-toothed. *Legume* falcated, leafy, varicose, surrounded with a wing, not gaping. *Seeds* solitary.

SPEC. CHAR. *Leaves* ternate, roundish, smooth. *Petals* notched, waved.

THIS species of Pterocarpus is a native of India and Ceylon, thriving luxuriantly in mountainous and rocky situations: in low vallies and in rich soils it is apt to degenerate. This tree was first described by König, who sent a description of it to the younger Linnæus.

It is a lofty tree, with alternate spreading branches; the bark is rough, and somewhat resembles that of the common alder; the leaves are petiolate and ternate, each simple leaf or pinnæ being ovate, blunt, retuse, or somewhat notched at the apex, entire, veined, above smooth, beneath hoary; the flowers are in axillary spikes, without bracteas; the calyx is rough, and divided at the brim into five segments; the corolla is papilionaceous, of a bright yellow colour, consisting of an obcordate, erect, reflexed at the edges, dentated, and waved vexillum, with red veins; two spreading alæ, denticulate, and waved, and an oblong and somewhat inflated short keel; the filaments are ten, and support white globular anthers; the germen is oblong, compressed, and hairy; the style is curved, and crowned with an obtuse stigma; the fruit is a roundish, smooth, compressed pod, the lower edge keel-shaped, the upper falcated, and contains a round compressed seed.

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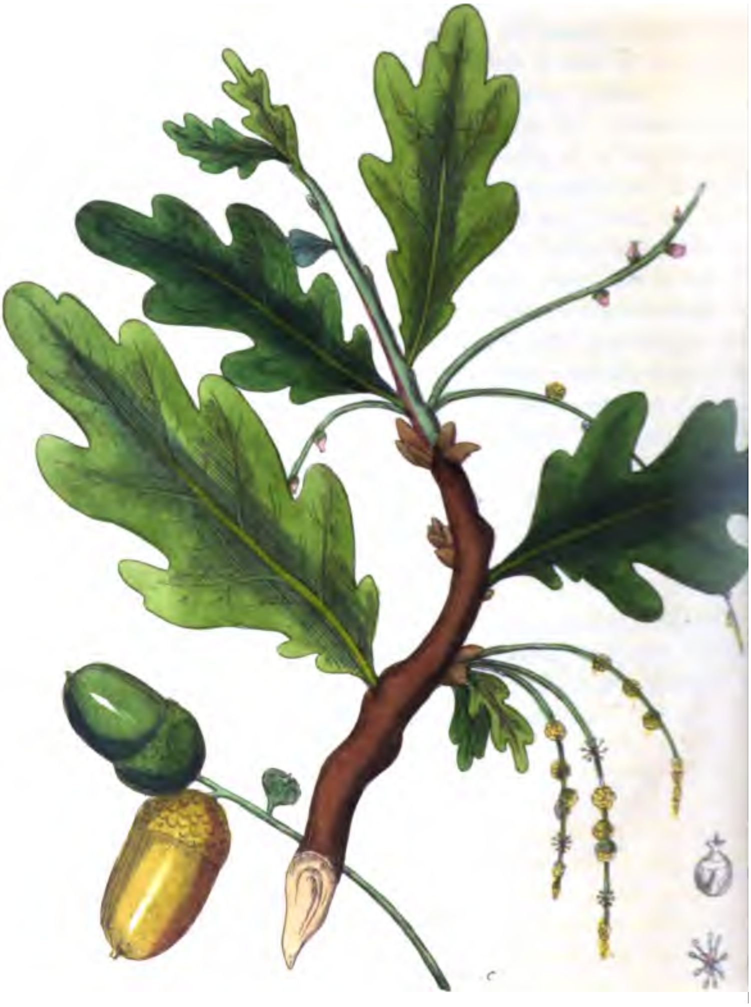
[*] Fig. *a.* represents the anthers. *b.* The calyx.

The wood of this tree is imported in the form of billets, which are very heavy, and sink in water; but it is usually met with in the shops in the form of a gross powder, which is said to be frequently adulterated with other red woods, of an inferior quality.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Sanders wood is of a dark blackish red externally, internally of a deep bright red, and the more florid the colour, the more it is esteemed; it becomes darker by exposure to the atmosphere; it is very hard, and bears a fine polish; when fresh cut, it manifests a somewhat fragrant and aromatic odour, but has little or no taste. It yields its colouring matter both to alcohol and ether; to water it imparts only a very slight yellow tinge; to some of the volatile oils, particularly that of lavender, it also imparts its colouring matter, but not to any of the expressed oils; to oil of turpentine it imparts a yellowish tinge only. M. Pelletier separated the colouring matter, *Santalin*, which he found to have great analogy with the resins. It is insoluble in water; soluble in alcohol, ether, acetic acid, and alkaline solutions; it forms beautiful coloured precipitates with many metallic solutions. Its acetic solution acts like tannin upon gelatin. It contains no azote.

Red sanders wood does not appear to possess any medicinal property, and its use only attaches to its colouring property. It forms the colouring ingredient in the compound spirit of lavender of the London, Edinburgh, and Dublin Pharmacopœias.

Off. The Wood.



Quercus Robur.

Spratt del.

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QUERCUS ROBUR.

Common Oak.[*]

Class MONŒCIA.—*Order* POLYANDRIA.

Nat. Ord. AMENTACEÆ.

GEN. CHAR. Male. *Calyx* commonly five-cleft. *Corolla* none. *Stamens* five to ten.

Female. *Calyx* one-leafed, entire, rough. *Corolla* none. *Styles* two to five. *Nut* coriaceous, surrounded at the base by the persistent calyx.

SPEC. CHAR. *Leaves* deciduous, oblong, sinuses acute, angles obtuse.

THIS species of oak is a native of Britain, and is also found in many parts of Europe, the north of Asia, and the northern extremity of Africa. This beautiful tree often rises to the height of eighty or ninety feet, and acquires an extraordinary magnitude in the trunk. The following instances of the amazing size to which the trunk sometimes attains, we presume will not be uninteresting to our readers. In the year 1764, there was an oak growing in Broomfield Wood near Ludlow, Shropshire, the trunk of which measured sixty-eight feet in girth, and twenty-three in length; this tree, allowing ninety square feet for the larger branches, contained one thousand four hundred and fifty-five feet of solid timber. An oak in the parish of Little Shelsley, Worcester, measured in circumference, at the distance of six feet from the ground, twenty-two feet four inches; and close to the ground, forty-eight feet. Green Dale Oak, near Welbeck, at eleven feet from the ground, measured thirty-eight feet. At Cowthorpe near Wetherley, Yorkshire, an oak measured seventy-eight feet in circumference close to the ground.[†]

The economical purposes to which this tree has been applied are various. The wood by uniting toughness with hardness, is of general use in carpentry; and its superior excellence for the purposes of ship building, has long rendered it an object of national importance. Oak saw-dust is one of the most valuable of our indigenous vegetables, used by dyers for dyeing cotton cloths of a drab colour, the different shades of which are made by this substance, variously managed. The oak apple is likewise used for the purposes of dyeing, and the bark is in universal use for the purposes of tanning leather.

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[*] Fig. *a.* a female flower. *b.* A male flower. *c.* The fruit.

[†] Withering.

The trunk and branches of this tree are covered with a rough brown bark; the leaves are alternate, and stand upon short petioles, oblong, deeply sinuated, forming obtuse lobes: on the upper surface of a deep shining green, underneath paler, and nearly glaucous; the flowers, which appear in May, are male and female upon the same tree, and are produced in axillary catkins; the male is lax, pendulous, and many-flowered; the female larger, peduncled, and three-flowered; the calyx of the male flower is of a yellowish colour, membranous, bell-shaped, and divided into five, six, or seven pointed segments; the stamens are ten, longer than the calyx, and support large double anthers. The calyx of the female flower is coriaceous, scaly, and downy; the germen is ovate, the style short, and supports three permanent stigmas; the fruit is an oblong, coriaceous, smooth nut, about an inch and a half long, and is well known under the name of acorn; it is fixed into the calyx as in a shallow cup, but dropping from it when perfectly ripe. The fruit ripens in October.

Sensible and Chemical Properties. Oak bark is inodorous; its taste is rough, astringent, and accompanied with some degree of bitterness: these qualities it yields both to water and rectified spirit. The watery infusion is acted upon by all those agents which affect the infusion of galls, and which indicate the presence of tannin, extractive, and gallic acid. (See Chemical Properties, &c. of galls.) M. Vauquelin has discovered a remarkable chemical difference between oak bark and gall nuts, the latter precipitating tartrate of antimony and infusion of cinchona, but which are not acted upon by the former: we are told however by Dr. Thomson, that "infusion of oak bark forms a precipitate with infusion of yellow cinchona bark." According to the analysis of Sir H. Davy, one ounce of the inner cortical part of young oak bark afforded by lixiviation, 111 grains of solid matter, of which 77 were tannin; the middle coloured part, or cellular integument, yielded only 43 grains of solid matter, of which 19 were tannin; and the epidermis furnished a very small portion either of tannin or extractive. The

proportion of tannin afforded by any quantity of bark, varies according to the age and size of the tree, and also on the season at which it is barked.*

Medical Properties and Uses. Oak bark is a very powerful astringent, and has been given with good effect in alvine fluxes, hæmorrhages, and other immoderate evacuations. It has been given with some advantage in intermittents, and we are told that in many instances it has effected a cure; but later experience has proved that it is in many respects inferior to cinchona, and cannot be depended upon. It has also been strongly recommended as a tonic in the weak state of infants suffering under the malignant coryza.† Oak bark has been chiefly employed as a local application, in the form of gargle, or lotion, to relaxations of the uvula, slight tumefaction of the mucous membrane of the fauces, procidentia recti et uteri, &c.

Off.	The Bark.
Off. Pp.	Decoctum Quercus, L.

QUERCUS INFECTORIA.

Oriental Gall Oak.‡

For *Class*, *Order*, Nat. Ord., and Gen. Char. see preceding Article.

Spec. Char. *Leaves* ovate-oblong, deeply toothed, deciduous. *Fruit* sessile, elongated.

The Quercus Infectoria§ is a native of Asia Minor, and is to be met with from the Bosphorus as far as Syria, and from the coast of the Archipelago as far as the frontiers of Persia. It has a crooked stem, seldom exceeds six feet in height, and more frequently assumes the character of a shrub than that of a tree; the leaves, which are deciduous in autumn, are on short petioles, smooth, of a bright green colour on both sides, and obtusely toothed; the acorn is elongated, smooth, two or three times longer than the cup, which is sessile, in a slight degree downy, and scaly; the gall comes at the shoots of the young boughs, and acquires from four to twelve lines in diameter: the insect which produces it, is the Cynips Quercusfolii of Linnæus (Diplolepsis Gallæ Tinctoriæ of Geoffroy) a small hymenopterous insect, or fly, with a fawn coloured body, dark antennæ, and the upper part of the abdomen of a shining brown. The insect punctures the tender shoot with its sting, which is spiral, and deposits its eggs in the puncture: this occasions a morbid irritation in the vessels of the part, the gall rises in a few hours, and attains its full size in a day or two, before the larva is hatched. The egg grows with the gall, and it is the irritation which it keeps up, not, as has been supposed, by the maggot feeding on the juices of the plant, that the morbid excitement is maintained in the vessels of the part, sufficient for the production of this kind of vegetable wen.

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* Phil. Trans.

† Underwood on the Diseases of Children.

‡ Fig. *a*. represents the insect which produces the gall, magnified; its natural size being about a quarter of an inch long. *b*. The larva. *c*. Another sort of gall, which we are told by Olivier is produced by a different insect: this sort of gall is much larger than the other, and of a soft and spongy texture.

§ Olivier appears to have been the first who ascertained this species to be the one which produces the galls of commerce.—Vide *Olivier's Travels*, p. 41.

SENSIBLE AND CHEMICAL QUALITIES OF GALLS. Galls are nearly spherical, and vary in magnitude from the size of a pea to that of a large hazel nut; they are smooth or knotty on the surface, of a greenish drab colour, some have a reddish or blue tint, and are generally perforated with a small hole; they are heavy, brittle, and break with a flinty fracture. Internally they consist of a spongy, striated, but hard substance, of a yellowish colour. They have little or no odour, but a bitter and powerfully astringent taste. The best galls are those of a bluish or blackish colour, heavy and tuberculated on the surface. Those that are light and spongy, and of a pale colour, are of an inferior quality. The soluble part of galls is taken up by about forty times its weight of boiling water, the residue is tasteless. Alcohol takes up nearly seven parts out of ten, and ether five. Neumann obtained from 960 grains of coarsely powdered galls, 840 watery extract, and afterwards 4 alcoholic; and inversely, 760 alcoholic, and 80 watery. From the analysis of Sir H. Davy, we learn that 500 grains of Aleppo galls yielded to pure water by lixiviation, 185 grains of solid matter, of which 130 were tannin; mucilage and matter rendered insoluble by evaporation, 12; gallic acid, and a little extractive matter, 31; saline and earthy matter, 12. A saturated decoction of galls, on cooling, deposits a copious pale yellow precipitate, which appears to be purer tannin than can be got by any other process. The watery infusion reddens tincture of litmus, and forms precipitates with solutions of the following substances:—isinglass, lime water, subcarbonate of potass, acetate of lead, sulphate of copper, nitrate of silver, sulphate of iron, nitrate of mercury, tartrate of antimony, and the infusions of columba root, casparia bark, and cinchona bark. The muriate of mercury renders the infusion milky and opaque, but no precipitate is formed. Nitrous acid, sulphate of zinc, infusion of quassia, ammonia, and infusion of saffron occasions no precipitate. The ethereal tincture, when evaporated on water, leaves on the side of the glass an opaque pellicle, and on the surface of the water small drops of an oily resinous-like matter, while the substratum of water becomes charged with tannin and gallic acid. The alcoholic tincture reddens litmus, and forms precipitates with the same re-agents as the watery infusion. To what principles these precipitates are owing remains to be ascertained. It is observed by Vauquelin, that the infusions of nutgalls and of cinchona, agree in precipitating both gelatine and tartrate of antimony, and that they precipitate each other. We are told by Dr. Duncan that, in his experiments, " a saturated mixture of the infusions of nut-galls and cinchona still precipitates gelatine, but infusions, separately saturated by gelatine, do not act on each other. Hence it appears, that the action of these infusions on each other, depends on principles contained in each, compatible with the presence of tannin, but re-acting on each other, and that gelatine precipitates these principles along with the tannin.

" It has been generally asserted, that the precipitate of tannin and gelatine is insoluble in water, either cold or hot; but I find that in boiling water, it not only becomes soft and viscid, but a certain portion is dissolved, which separates again when the solution cools." *

M. Braconnot has discovered in nut-galls a new acid, which he has named *Ellagic.*† This acid is in the form of a white powder, with a slight tinge of red, insipid, inodorous, and insoluble in boiling water; combined with nitric acid and gently heated, the mixture acquires a deep red colour. Galls also yield by distillation with water, a small portion of a concrete volatile oil.‡

MEDICAL PROPERTIES AND USES OF GALLS. Galls are the most powerful of the vegetable astringents. As an internal medicine, galls may be considered applicable to the same disorders as the oak bark; and from being readily reduced to a fine powder, possesses an advantage over it; but they are more frequently used externally, in the form of gargles or injections. One part of finely powdered galls, combined with seven parts of simple ointment, has been found an excellent application in hæmorrhoidal affections.

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* Edinburgh New Dispensatory.

† Ann. de Chim. et Phys. tom. ix. p. 187.

‡ Phil. Mag.

Off. The Gall.
Off. Pp. Tinctura Gallarum, E. D.

◆

FERULA ASSAFŒTIDA.

*Assafœtida.**

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. UMBELLATÆ.

GEN. CHAR. *Fruit* oval, compressed, plane, with three streaks on each side.

SPEC. CHAR. *Radical Leaves* from six to seven, bipinnate. *Pinnæ* alternate, variously sinuated. *Umbels* compound plano-convex, terminal, and consist of many radii.

THIS species of Ferula is a native of the south of Persia, growing on the mountains in the provinces of Chorasaan and Laar, where it is named *Hingisch*. The following description we copy from Kaempfer, who saw the plant growing, during his travels in Asia.†

The root is perennial, tapering, ponderous, and attains the size of a man's arm or leg, covered with blackish coloured bark, and near the top beset with many strong rigid fibres; the internal substance is white, fleshy, and abounds with a thick, fœtid,

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* Fig. *a.* and *b.* the seed. *c.* The corolla, magnified.

† Vide Amœnitates Exoticæ, p. 535, 536.

[illegible]

* * *

[illegible]

[illegible]

CLASS PENTANDRIA — [illegible]

Nat. Ord. [illegible]

[illegible] oval [illegible] on each side.

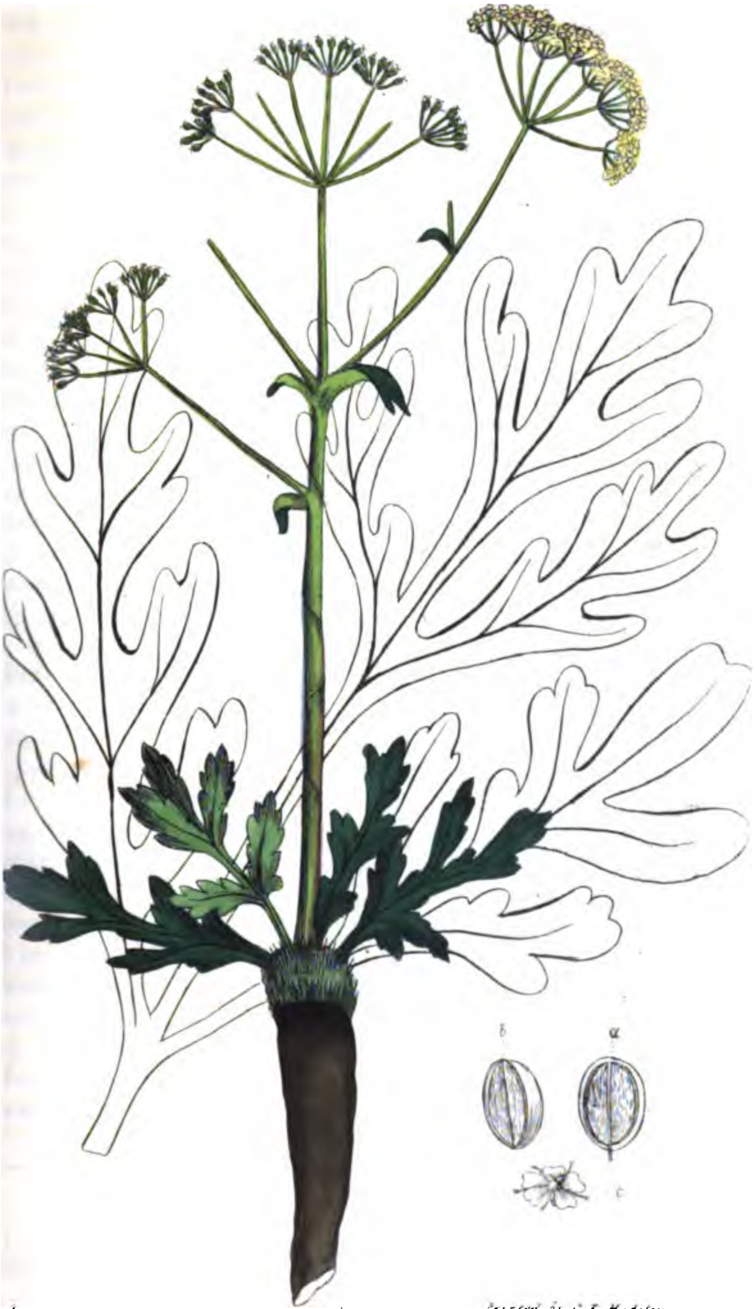
[illegible] CHAR. Radical Leaves [illegible] Pinnæ alternate, [illegible] plano-convex, [illegible]

This species of [illegible] is a native of the [illegible] on the mountains in the provinces of [illegible] it is named Hi [illegible] gisen. [illegible] Kæmpfer, also saw the plant growing [illegible]

The root is perennial, tapering, [illegible] size of a [illegible] arm or leg, covered with [illegible] and near the top [illegible] set with many strong [illegible] is white, fleshy, and [illegible]

Fig. a and b, the seed. c. The corolla, magnified.

† Vide Amœnitates Exoticæ, p. 555, 556.



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Printed by C. E. Madeley.

Ferula Aſsafœtida.

milky juice; the stalk is simple, erect, straight, round, smooth, striated, herbaceous, about six or seven inches in circumference at the base, and rises to the height of two or three yards: the radical leaves are six or seven, nearly two feet long, bipinnate; the pinnæ are alternate, variously sinuated, lobed or lanceolate, smooth, of a deep green colour, and fœtid smell; the umbels are compound, plano-convex, terminal, and consist of many radii; the seeds are oval, flat, foliaceous, of a reddish brown colour, rough, marked with three longitudinal lines, have a porraceous smell, and a sharp bitter taste.

This plant is said to vary according to the situation and soil in which it grows, not only in the shape of the leaves, but in the nauseous quality of the juice with which they are impregnated, sometimes becoming so mild as to be eaten by the goats. The gum resin known in commerce under the name of Assafœtida, is the concrete juice of the root of this plant.* When the plants are about four years old, the roots are sufficiently vigorous to yield the Assafœtida. In the provinces of Chorasaan it is procured in the following manner: at the season when the leaves begin to decay, the oldest and most vigorous plants are selected, the earth from the upper part of the root is cleared away, the stem and leaves twisted off; it is then left in this state for forty days, being previously screened from the sun by covering it over with the decayed leaves: at the expiration of this time the covering is removed, and the top of the root cut off transversely, and left for forty-eight hours for the juice to exude, when it is scraped off by a proper instrument, and exposed to the sun to harden. This operation is repeated three times, after which the root is again covered up, and suffered to remain for eight or ten days, when it is again uncovered and another transverse section is made as before. In this way the Assafœtida is collected eight times, when the root becomes exhausted of its juice, and soon after perishes. The collecting of the Assafœtida is performed by the peasants who live in the neighbourhood of the mountains; the juice from a number of roots is collected at the same time, put together, and exposed to the sun to harden.

Sensible and Chemical Properties. Assafœtida comes to market in large irregular masses of a heterogeneous appearance, composed of various shining little lumps or grains, some of which are white, others of a brown or reddish colour, and some of a violet hue. Those masses are esteemed the best which are clear, of a pale reddish colour, and variegated with a great number of fine white tears. Assafœtida has a strong, fetid, and to most persons a disagreeable odour, and a bitter, subacid taste; it becomes brittle by exposure to the air, but is not readily reduced to powder. It is composed chiefly of gum, resin, and essential oil, the latter of which is obtained by distillation, either with water or alcohol. Its odour and taste reside in the resin and oil, which are readily dissolved by ether and alcohol; hence the alcoholic and ethereal tinctures combine the virtues of this drug, the former dissolving three parts out of four. By trituration with water Assafœtida forms an opaque milky solution, about 60 per cent. being readily dissolved, which is chiefly extractive matter.

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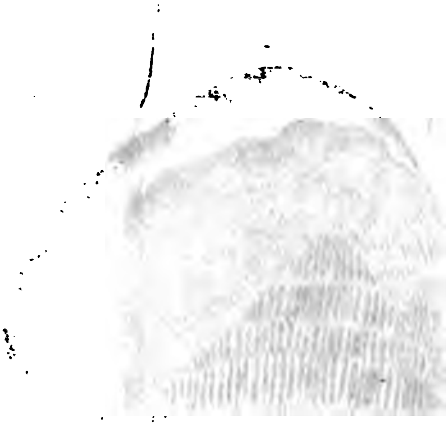
* It is probable that Assafœtida is obtained from different species of Ferula, as the plant cultivated by Dr. Hope, in a botanical garden near Edinburgh (the Ferula Persica) produced a similar juice.

Medical Properties and Uses. Assafœtida is stimulant, expectorant, and antispasmodic, it is considered a more efficacious medicine than any of the other fetid gums; hence it has been much employed in hysteria, hypochondriasis, flatulent colics, tympanites, dyspepsia, and many nervous disorders; also as an anthelmintic, and as an emmenagogue, and for those peculiar convulsive and spasmodic symptoms which so often recur in the latter disease, it frequently proves the most efficacious remedy we possess. When we wish it to act immediately as an antispasmodic, it should be given in a fluid form, as that of the diluted tincture; when inflammatory symptoms are present, it should be used with caution, owing to its stimulant qualities, and it may be conveniently combined with nitre or antimonials according to the state of the patient. As a topical remedy it is applied in the form of plaster to promote suppuration in indolent tumours, and also in the form of enema in convulsions attending dentition, worms, flatulent colic, &c. Assafœtida may be taken in doses of from five to twenty grains, two, three, or more times a day.

Off. The Gum-resin.
Off. Pp. Enema Fœtida, D.
Mistura Assafœtidæ, L. D.
Tinctura Assafœtidæ, L. E. D.
Pilulæ Assafœtidæ Compositæ, E.,

it also enters into the combination of many other compound medicines.



[illegible]

BOLETUS IGNARIUS.

Agaric of the Oak.

Class CRYPTOGAMIA.—*Order* FUNGI.

Nat. Ord. FUNGI, *Linn.* and *Juss.*

GEN. CHAR. *Fungus* horizontal, porous beneath.

THIS species of fungus is a native of Britain, and is found growing on the trunks of trees, particularly on old decayed trunks of the oak and ash; it varies in size from two to seven or eight inches in diameter.

This fungus is generally sessile, but according to Withering it is sometimes found with a footstalk an inch in length, in form it somewhat resembles a horse's hoof; on the upper side it is smooth, scaly, and convex, but somewhat depressed in the centre, and marked with circular ridges of various colours; the under side is flat, white or yellowish when young, but when old it becomes dark brown, approaching to black, and full of minute pores; the internal substance is fibrous, hard, tough, and of a tawny brownish colour; the seeds are contained in the tubes. Balliard describes the tubes as being very slender, equal, and of the colour of tanned leather, in old plants stratified, a fresh layer being added every year. Pileus very hard, admitting of a polish by rubbing, marked with concentric bands or ridges, each broad ridge indicating a year's growth, and three or four small ones that of the different seasons of the year, varying extremely in colour.

The Boletus which grows upon the oak is considered to be the best: for medicinal purposes it should be gathered in August or September, and kept perfectly dry. This species of Boletus appears to have derived its specific appellation, from its being used for tinder; for this purpose, we are told, the Germans boil it in a strong ley, then dry it, and again boil it in a solution of saltpetre. In Franconia the inner substance of this fungus is prepared by beating it with a hammer, till it becomes soft, and resembles chamois leather; it is then made use of for forming garments, and other purposes.

Sensible Qualities, &c. Agaric is nearly inodorous, its taste is gently astringent. According to the analysis of Bouillion le Grange, it contains an extractive matter bearing a resemblance to animal gluten, resin, and various salts.

Medical Properties and Uses. This species of agaric was introduced into medical practice as an external application to bleeding arteries and veins,* and for a considerable period it was held in much repute, both on the continent and in this country, but the improved practice of tying the larger bleeding vessels has nearly superseded the use of this substance, which does not appear to possess styptic powers much superior to either sponge or lint. To prepare it for surgical purposes, the outer hard part is to be pared off with a knife till you come to the inner soft substance, which may be cut into pieces of various sizes, and beat with a hammer till they become perfectly soft, so as to be readily torn with the finger.

Off. Agaric.

◆

SCROPHULARIA NODOSA.

Knobby-rooted Figwort.†

Class Didynamia.—*Order* Angiospermia.

Nat. Ord. Personatæ, *Linn.* Scrophulariæ, *Juss.*

Gen. Char. *Calyx* five-cleft. *Corolla* sub-globular, resupine. *Capsule* two-celled.

Spec. Char. *Leaves* heart-shaped, acute; three-ribbed at the base. *Stem* sharp-edged.

The Genus Scrophularia comprises a pretty numerous family,‡ natives of almost every climate: the species under con-

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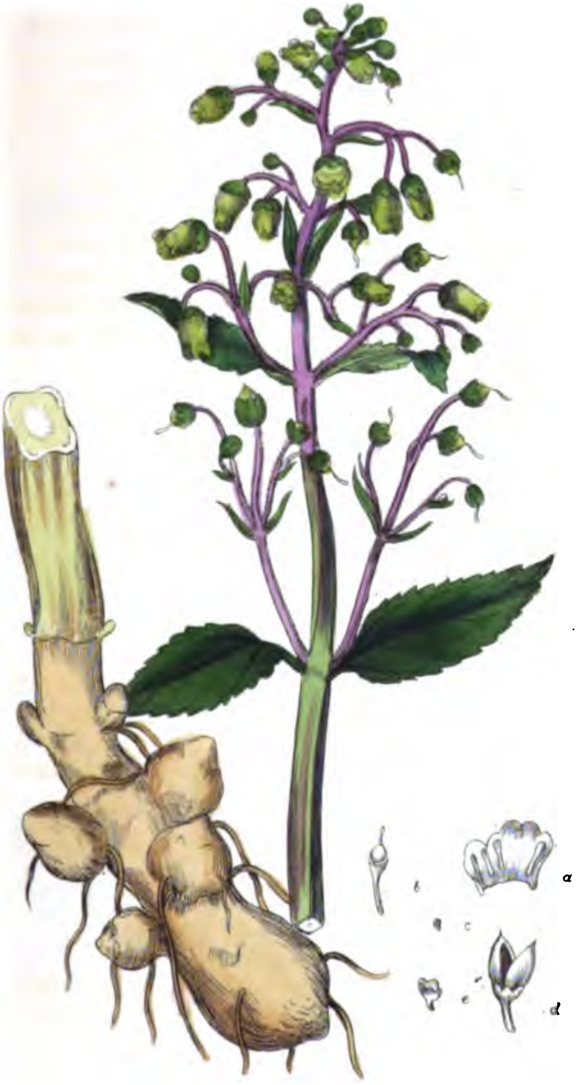
* First introduced by M. Brossard, a French surgeon, in 1750.

† Fig. *a*. The corolla spread open to shew the stamens. *b*. The pistillum. *c*. A seed. *d*. The capsule. *e*. The calyx.

‡ Twenty-nine species are cultivated in our botanic gardens.



Scrophularia Nodosa.

Spratt del

Printed by G E Madeley, Wellington St

sideration is an indigenous perennial plant, growing in groves and hedgerows, flowering in July. The root is tuberous, knobbed, or granulated; the stem rises two or three feet in height, is erect, simple, sharply quadrangular, smooth, and leafy; the leaves are opposite, petioled, heart-shaped, acute pointed, unequally serrated, smooth, and veined; the flowers are produced in terminal bunches.

Sensible Qualities, &c. The leaves of figwort have a rank fetid smell, somewhat like elder leaves, and a disagreeable bitter taste. The root has a nauseous smell, and a sweet, but somewhat acrid taste, both of which they partly lose by drying: the root and leaves yield their qualities to water, the infusion precipitates sulphate of iron brown. We have not learnt that this plant has been chemically analyzed.

Medical Properties and Uses. Figwort is considered sedative and diuretic, but it is seldom employed in practice, although from its good effects in scrophula it is supposed to have derived its generic name. It has also been used with good effect as a topical application (in the form of fomentation) to piles, ulcers, and cutaneous eruptions, and to promote suppuration in malignant tumours. There is no officinal preparation of this plant, and never having prescribed it, we can say nothing of the doses in which it should be taken, but from its supposed good effects in scrophula, &c. we deem it worthy of further trials.

Off. The Herb.

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STALAGMITIS CAMBOGIOIDES.

The Gamboge Tree.[*]

Class Polygamia.—*Order* Monœcia.

Nat. Ord. Tricoccæ,

Gen. Char. *Calyx* four-leaved. *Corolla* four-petalled. *Stamens* thirty, inserted into a fleshy four-cornered receptacle. *Style* thick. *Stigma* four-lobed. *Berry* one-celled, crowned by the style, three-seeded.

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[*] Fig. *a*, a transverse section of the fruit. *b*. A seed.

THE GAMBOGE TREE is a native of the kingdom of Siam, and Ceylon, where it is known by the names of *Ghokata*, *Gokkata*, or *Gohlatha*. Kœnig who resided many years at Siam, clearly ascertained that the Stalagmitis is the tree that affords the genuine drug.

It is a middling sized tree, and branched; the leaves are of a dusky green, and stand opposite on short petioles, they are ovate, entire, even, coriaceous, and rigid; the hermaphrodite flowers are in axillary whorls, or on the joints of the smaller branches; the male flowers are either in distinct clusters, or mixed with the hermaphrodite; the calyx consists of four ovate leaflets, the two exterior of which are smaller than the two inferior; the petals are four, spreading, coriaceous, with ciliated margins, and of a yellow colour; the stamens are about thirty, and placed upon a quadrangular fleshy receptacle; the anthers are club-shaped; sometimes there are rudiments of a style, and an unequal sterile stigma; the calyx, corolla, and stamens of the hermaphrodite flowers resemble those of the male; the germen is globular, and supports a short style, crowned with a three or four-lobed stigma, the lobes of which are obcordate and persistent; the fruit is a smooth, globular, yellow, or rosaceous berry, crowned by the style and lobes of the stigma, and contains several long triangular seeds.

But the Stalagmitis Cambogioides is not the only tree that produces gamboge, although it is probable the greater part of that brought to market is the product of that tree; there are several trees which yield yellow gum resin, resembling in every respect the gamboge of the shops, viz. *Gambogia Gutta*, *Garcinia Celebica*, *Hypericum Pomiferum*, and many other plants.

Gamboge is obtained by wounding the bark of the tree with sharp stones, or by breaking off the leaves and young shoots: the former mode is usually practised in Ceylon, and the latter at Siam. It is said to be collected first in cocoa nut shells, and from thence poured into the joints of the bamboo, (which gives it the cylindrical form,) or earthen vessels, where it remains until it becomes sufficiently dry to roll into masses, when it is wrapped up in leaves, the state in which it is usually exported. Gamboge was first brought to Europe about the middle of the seventeenth century: it is imported packed in cases or boxes.

Sensible and Chemical Properties. Gamboge has no smell, and scarcely any taste; when pure[*] it is of a golden yellow colour, opaque, and breaks with a vitreous fracture, its specific gravity is 1.221; when applied to the flame of a candle it takes fire, and burns with a bright, crackling, sparkling flame, with smoke, at first it softens, then part melts and drops, the remainder grows black, swells, and is changed into a shining friable charcoal. In a ladle it slowly softens by heat, but does not smoke, nor melt, but by degrees grows black, and changes into a soft, toughish, black mass. Gamboge when macerated in water, forms a fine turbid yellow solution, and about two-thirds of the gamboge is dissolved; the solution is not precipitated by alcohol, but rendered transparent; oxysulphate of iron strikes with it a pale olive brown, but causes no precipitate, nor is it affected by solutions of any of the other metallic salts. Alcohol dissolves about 90 per cent.; the solution after settling for some time becomes transparent, and deep yellow, water renders the tincture cloudy and bright yellow, but it is long before any precipitation takes place. Ether dissolves 60 per cent., the solution is transparent, and of a deep golden colour; when evaporated on water it leaves an orange coloured resin, which does not colour water. Gamboge is also soluble in strong solutions of ammonia and potass, forming with them deep red solutions, which are not rendered turbid by the addition of water; with weak acids yellow precipitates are produced, which are taken up again by adding the acid to excess. Gamboge was separated by Braconnot into one part of cerasine or tragacanthine, and four of a reddish brittle resin, which dissolves in spirit of wine and the alkalies: these experiments however do not throw any light upon the cathartic property of gamboge.

Medical Properties and Uses. Gamboge is a drastic cathartic, acting powerfully on the alimentary canal, in small doses it often produces vomiting, hypercatharsis, and other untoward symptoms. Orfila has given it a place amongst the acrid poisons, and infers from his experiments made on dogs, that it occasions death by the powerful local action it exerts, and on the sympathetic irritation of the nervous system.[†]

Gamboge is used with success as an hydragogue in dropsy, either alone, or in combination with cream of tartar or jalap, to quicken this operation; it is also used with success for expelling tæniæ, and it is probably the active ingredient in most of the nostrums sold for that purpose. For expelling tæniæ it has been given to the extent of fifteen or twenty grains, combined with an equal quantity of vegetable alkali; this dose is ordered to be taken in the morning, and if the worm be not expelled in two or three hours, it may be repeated a second or third time with safety and efficacy. It is also efficacious in obstinate costiveness, and may be administered alone, in doses of from two to five grains, or combined with calomel, jalap, or rhubarb.*

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[*] It is often mixed with sand and other impurities.—*Ed.*

[†] Orfila's Toxicology, vol. ii. p. 24.

Off. The Gum Resin.
Off. Pp. Pilulæ Cambogiæ Compositæ, L. E.

◆

ASTRAGALUS VERUS.

True Astragalus.†

Class DIADELPHIA.—*Order* DECANDRIA.

Nat. Ord. PAPILIONACEÆ, or LEGUMINOSÆ, *Linn.*

GEN. CHAR. *Legume* generally two-celled, gibbous.

SPEC. CHAR. *Leaves* pinnate. *Pinnæ* lance-shaped, villous, stiff. *Flowers* axillary.

THIS species of Astragalus is a native of the north of Persia, where it is called Kurn, flowering in July and August; we are indebted to Olivier ‡ for the discovery of this plant, which furnishes the Gum Tragacanth of commerce: previous to his account, this gum was generally considered to be the product of Astragalus

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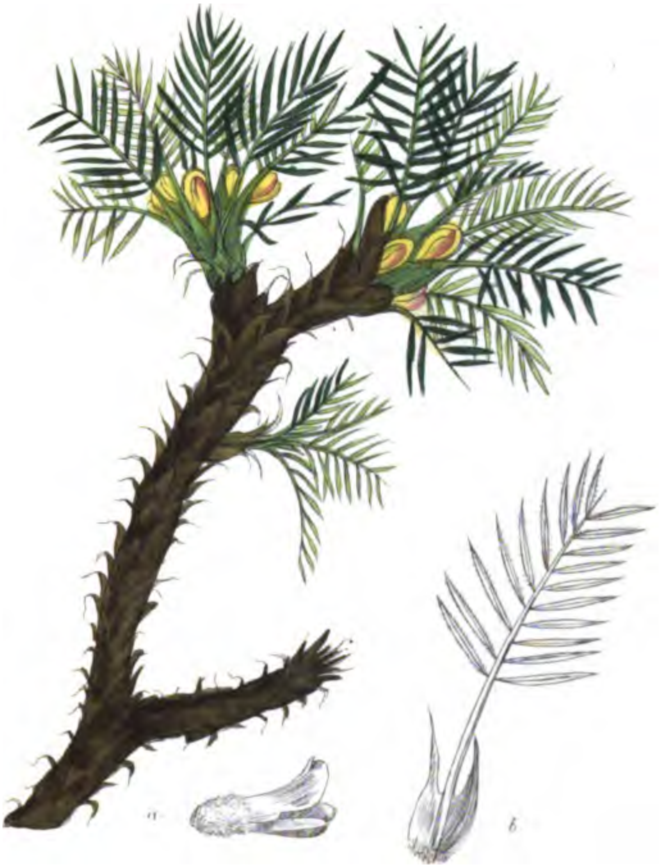
* Gamboge is much used by artists in water-colour drawing, being the brightest and most beautiful of the yellows, and forming an endless variety of tints, from the pale straw colour to deep orange.—*Ed.*

† Fig. *a.* the corolla. *b.* A separate leaf.

‡ Vide Voyage dans l'Empire Ottoman, v. 342.



Astragalus Verus.

del.

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Tragacantha of Linnæus, or the Astragalus Gummifera; the former on the authority of Tournefort, and the latter on that of M. de la Billardiere.* It is probable that all these species afford the gum more or less, but the Astralagus Verus in much the largest quantity.

The gum exudes, in summer,† through the bark, and concretes into irregular lumps, or long vermicular pieces, bent into an endless variety of shapes, and larger or smaller in proportion to its quantity, and the size of the wounds from which it issues. The quantity of Tragacanth furnished by Persia is very considerable, it is exported to India, Bagdad, and Bussorah, and also to Russia by the way of Bakon; what is imported into this country comes chiefly from Aleppo, packed in cases.

This is a low tree, seldom exceeding three feet in height; the stem is about an inch in diameter; the branches numerous, and crowded together, and covered with imbricated spines and scales, formed of the petioles of the preceding year; the leaves are pinnate, consisting of six or eight pairs of leaflets; the pinnæ are nearly opposite, villous, stiff, and pointed; the flowers are small, and of a yellow colour, and arise from the axilla of the leaves; the calyx is divided at the brim into five pointed segments; the corolla is of the papilionaceous kind.

SENSIBLE AND CHEMICAL PROPERTIES. Gum Tragacanth‡ when good is inodorous, and as it dissolves in the mouth imparts a slight bitter taste: the best gum is semi-transparent, and of a clear whitish colour, and in small, thin, wrinkled, vermicular pieces or lumps; the larger lumps are of a yellowish colour, and more bitter to the taste. This gum differs from all other known gums, in giving a thick consistence to a much larger quantity of water, and at the same time being much more difficult of solution, or rather, dissolving only imperfectly, unless triturated after digestion with a larger portion of water; for although the liquor looks turbid, on standing the mucilage subsides, the water on the surface retaining little or none of the gum. If the water be acidulated with any of the mineral acids, a small portion of the gum becomes dissolved. Tragacanth is reduced to powder with much difficulty, unless thoroughly dried. According to Neumann it gives nothing over in distillation, either to water or alcohol; it is also insoluble in alcohol or ether. The mucilage is precipitated by the sulphate of copper, superacetate of lead, and oxymuriate of tin; but not by silicated potass, or the oxysulphate of iron: in these circumstances the mucilage of tragacanth differs from that of gum arabic.

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* He says, that he visited Mount Lebanon in August 1786, the season when the gum tragacanth is collected; he then found the species of Astralagus which afforded it, to be different from that figured by Tournefort, and consequently not the Tragacantha of Linnæus. See description d'une nouvelle espece d'astragale, qui produit au Liban la gomme adragant, Hist. de l'Acad. R. des Scien. du 16 Dec. 1788.

The Genus Astralagus comprises a very numerous family of plants, natives of almost every climate and soil, sixty of which have been introduced and cultivated in our botanic gardens.—*Hort. Canth.* Four species of this genus are indigenous to Britain, viz. Astragalus Glycyphyllos, Astragalus Hypoglottis, Astragalus Uralensis, Astragalus Campestris.—*Smith.*

† Tournefort says, that it exudes more or less copiously, according to the heat of the weather. M. de la Billardiere however contradicts this opinion, and says that it is only during the night when the sun is obscured by clouds, that the gum issues from the plant.

‡ Dr. John has given the name of Cerasin to this species of gum, from its being exuded from the Prunus Cerasus, (cherry tree.)

MEDICAL PROPERTIES AND USES. Gum tragacanth is demulcent, hence it is very useful for allaying tickling coughs, and sheathing the fauces in catarrhal affections;* and for these purposes (from its great viscidity) it is preferable to gum arabic: it is seldom given alone, being generally combined with more powerful medicines, more especially in the form of troches, for which purpose it is very well adapted. Tragacanth may be taken in powder, from ten grains to one drachm or more, in any suitable vehicle.

Off.	The Gum.
Off. Pp.	Mucilago Astragali Tragacanthæ, E. D. Pulvis Tragacanthæ Compositum, L.

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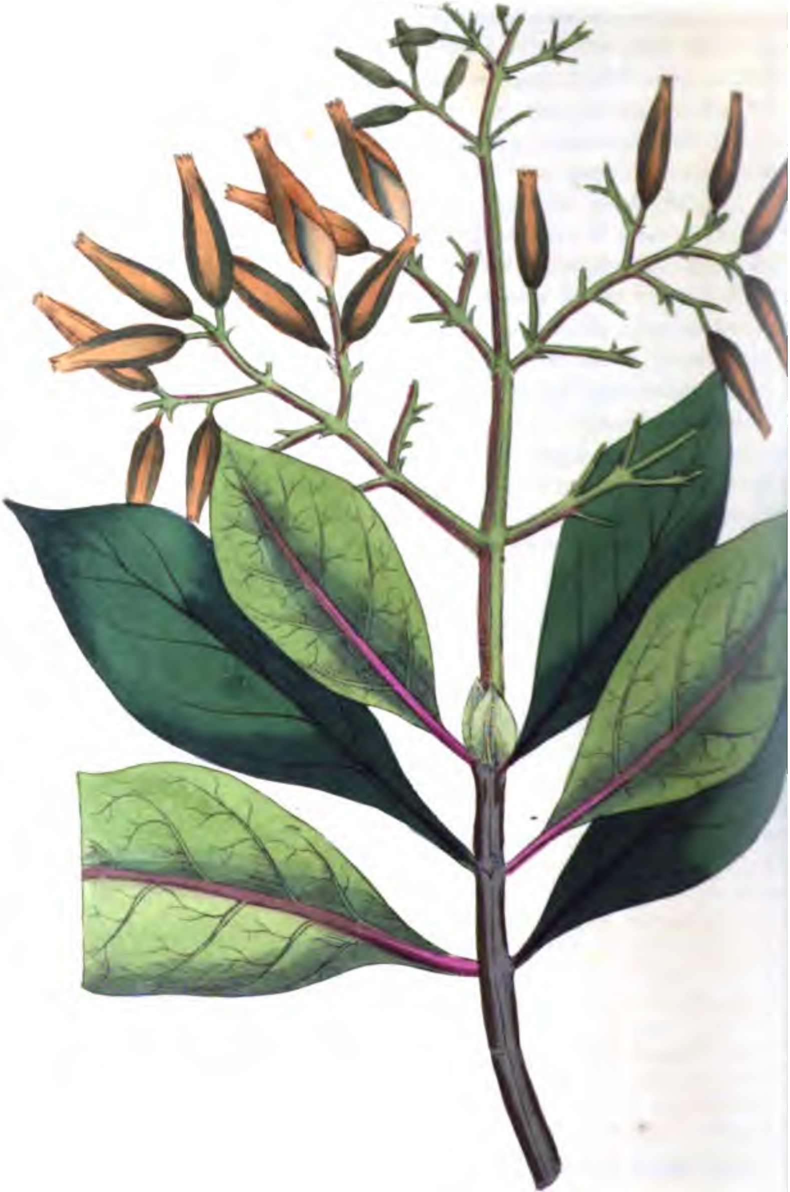
* Bergius says, virtus demulcens, obtundens, incrassans, usus dysenteria, diarrhœa, stranguria.



Cinchona Lancifolia.

G. Spratt del. [illegible]

CINCHONA.

Cinchona, commonly called Peruvian Bark.

Class PENTANDRIA.—*Order* MONOGYNIA.

Nat. Ord. CONTORTÆ, *Linn.* RUBIACEÆ, *Juss.*

GEN. CHAR. *Corolla* monopetalous, funnel-shaped. *Capsule* inferior, two-celled. *Seeds* numerous, oblong, compressed, winged.

WE believe the fact to be now pretty well established, that there are many species of this tree, which yield a bark, partaking more or less of the properties that distinguish the Peruvian bark of commerce;[*] although the distinct characters of these species is still a desideratum in our botanical works.

The entire genus is indigenous to the new world, growing for the most part among mountainous regions, difficult of access, and in other respects affording but little encouragement or convenience to the scientific traveller. To this cause we may ascribe our want of better information, respecting one of the most valuable remedies which the vegetable world has yet offered to mankind; recent events, added to the valuable labours of pharmaceutical chemistry, and the present enterprise and improvement in that science, will, it is hoped, soon bring us better acquainted with the botanical characters of those species of the Cinchona, to which medicine is so much indebted.[†]

The Edinburgh College formerly enumerated three *varieties* of the Peruvian bark, viz. the common or pale bark, the yellow, and the red; but it has been long since ascertained by the Spanish botanists, that these barks not only belong to distinct species, but that, probably, each of them is taken indiscriminately from several different species. The first of these is now generally referred to the Cinchona Lancifolia of Mutis; the second to the Cinchona Cordifolia of Mutis, under which he includes the Cinchona Purpurea, and Micrantha, of the Flora Peruviana, and the Cinchona Ovata of Ruiz; and the third to the Oblongifolia of Mutis; the Magnifolia of Ruiz and Pavon. These species will be found figured in the annexed plates, while we shall treat the subject under the general head of Cinchona; and when noticing the recent discoveries of the French chemists, MM. Pelletier and Caventou, we shall have occasion to consider the relative virtues of the different species.

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[*] Ruiz and Pavon have described fifteen species, natives of Peru and Chili; and seven have been found by Mutis, in the neighbourhood of Santa Fé.

[†] We understand that two enterprising chemists have lately gone from London to South America, for the purpose of preparing, on the spot, the sulphate of quinine for the European Market. As a matter of profitable speculation, there can be little doubt of the success of these gentlemen, while we trust science will be equally benefited by their labours and observation.

Cinchona Lancifolia.[*]—This species of Cinchona grows to a great height and bulk, being often found thicker than a man's body; particularly before the great demand for this medicine led to the destruction of so many full grown trees, by stripping them of their bark, after which, it is said, they always die.[†] It sends off numerous large branches, which, as well as the trunk, are covered with a rough brown bark; the leaves are somewhat between an ovate and an elliptical form: the smaller ones being more of the latter, and the larger ones of the former figure; they are entire, nerved, smooth on the upper surface, downy beneath, and stand in pairs upon footstalks; the flowers are produced in panicles, and stand upon slender footstalks; the calyx is small, bell-shaped, and cut into five small segments at the margin; the corolla is funnel-shaped, and consists of a long cylindrical tube, divided at the limb into five ovate, or oblong, spreading segments, which are red on their upper surface, woolly on the under, and fringed at the edges; the filaments are bristly, and stand in the centre of the tube; the anthers are oblong, and twisted in a spiral manner; the germen is ovate, style filiform, somewhat longer than the stamina, and furnished with a round stigma; the capsule is divided into two cells by a parallel partition; the seeds are small and numerous.

Cinchona Cordifolia.—This tree is a native of Peru, where it grows in great abundance, on a long chain of mountains that extend

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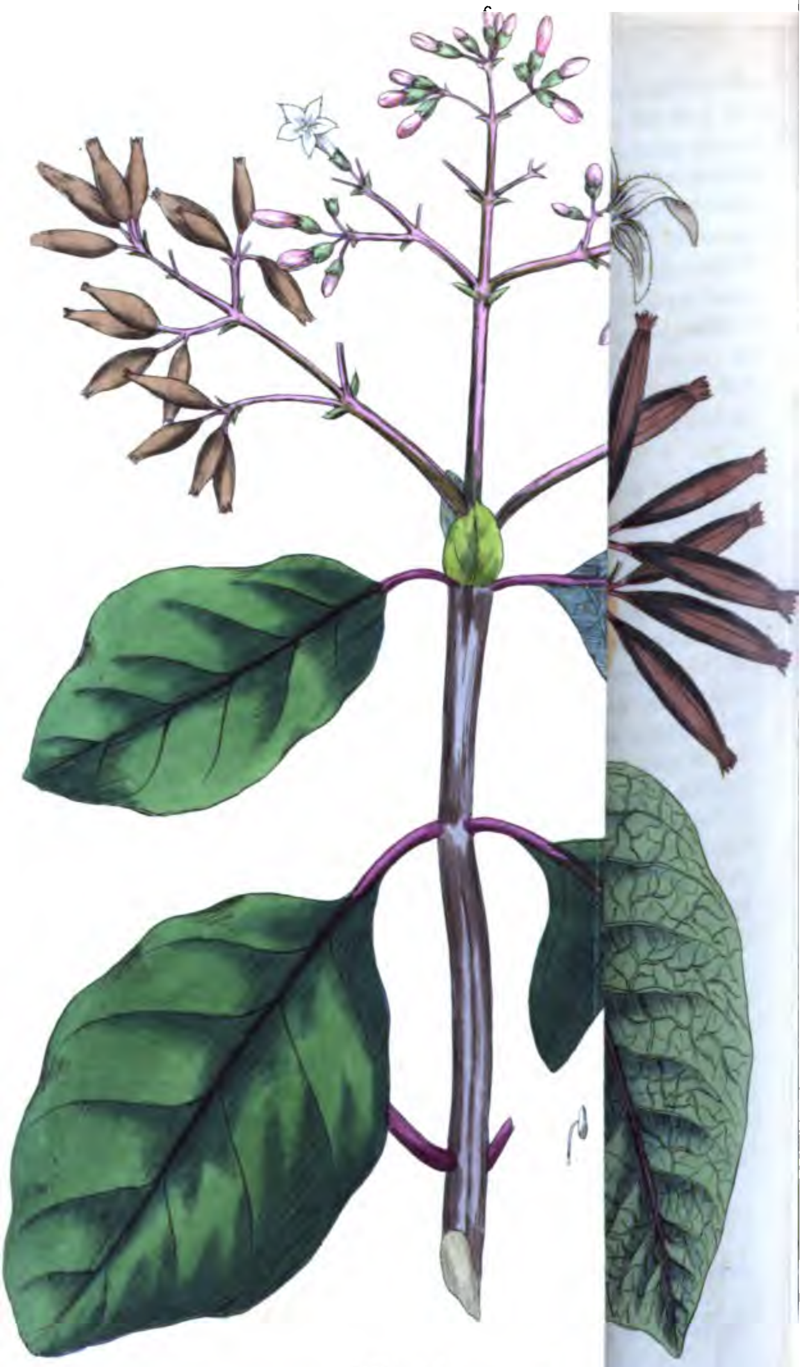
[*] The bark of this species was formerly described under the vague name of Cinchona Officinalis.

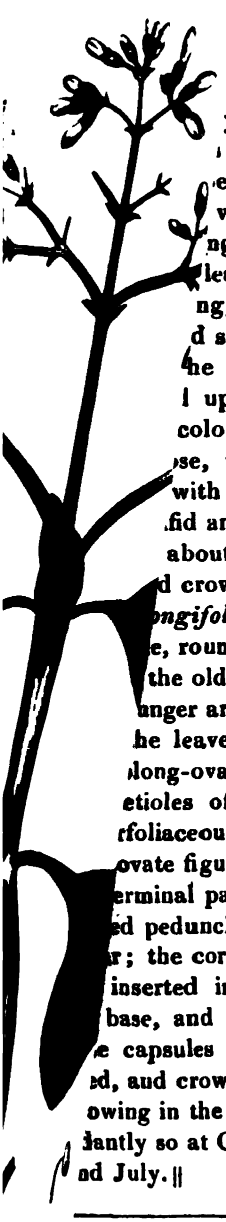
[†] Condamine however asserts that the young trees do not die by losing their bark, but send out fresh shoots from the base—he is good authority.



G. Sp-att del.

Cinchona Cord

d. by G. E. Madeley



of Loxa. The soil in which it thrives best, is
y or rocky ground, and particularly on the
descending from the mountains,* flowering
er. The stem is of no great thickness, erect,
with a smooth bark, externally of a brown
nger branches are quadrangular, smooth, leafy,
leaves are opposite, spreading, oblong-ovate,†
ng, entire, shining on the upper surface, pubes-
d stand upon purplish petioles, flat on one side,
he other; the flowers appear in terminal leafy
l upon long tetragonous peduncles; the calyx is
colour, downy, and five-toothed; the corolla is
se, white above, and purplish below; the seg-
with reflected tips; the filaments are short, and
fid anthers; the germen is tomentose; the capsule
about an inch and a half in length, of a reddish
d crowned with the calyx.‡

ngifolia.—This tree rises to a considerable height;
e, round, and erect, with a smooth, brownish or ash
the older branches are smooth, round, and of a rusty
nger are obtusely four-cornered, leafy, and of a red-
he leaves, when full grown, are from one to two feet
long-oval shape, and stand opposite, supported upon
etioles of a purple colour; the stipules are supra-
foliaceous, opposite, contiguous, united at the base,
ovate figure; the flowers are produced in large, erect,
rminal panicles, and are placed upon long, brachiated,
d peduncles; the calyx is small, five-toothed, and of a
r; the corolla is white, and odorous; the filaments are
inserted into the tube of the corolla; anthers oblong,
base, and situated below the middle of the tube of the
e capsules are large, oblong, obscurely striated, some-
d, and crowned by the calyx.§ This tree is found on the
owing in the woods on the banks of the mountain streams,
lantly so at Chinchao, Riobamba, and Cuchero, flowering
nd July.||

Trans. vol. xl. p. 83.

eaves of species varies very much in form.

a. the calyx and pistillum. b. The corolla spread open. c. The style.
aen.

a Peruv. ii. 53, 196.

a. the style. b. The corolla cut open. c. A stamen. d. The calyx.

The only proper season for cutting the bark is from September to November: this being the only period of intermission from rain in these mountainous districts; and it seems essential, not only that the bark should be cut during a dry season, but that it should afterwards be carefully preserved from wet.* The operation of barking is performed by the Indians, for whom temporary huts are built in the neighbourhood of the trees, and also a large one, into which the bark is immediately removed, to guard against wet; from this place it is sent as speedily as possible to the nearest plantation in the low country, where it is dried in the open air. Two Indians are allotted to one tree, who are provided each with a large knife, and a bag that will contain about 50 lbs. of the green bark; they commence their operations on the lower part of the tree, and continue them upwards, ascending by means of a temporary ladder, which they construct on the spot, one Indian remaining below to gather what the other cuts.

SENSIBLE AND CHEMICAL PROPERTIES OF BARK. There are several varieties of the common or pale found in commerce, of these the most remarkable are, the quilled bark, which comes from Loxa, and the flat bark from Guanaco. The former consists of thin, singly or doubly rolled pieces, four or five inches long, and scarcely a line in thickness; externally rough, of a greyish brown colour, and generally covered with a kind of lichen; externally of a cinnamon colour. The best sort breaks close and smooth, and proves friable between the teeth; the inferior kinds appear, when broken, of a woody texture, and in chewing separates into fibres. It has a slight, somewhat musty smell, but not altogether disagreeable; its taste is very bitter, astringent, very durable in the mouth, accompanied with some degree of aromatic warmth, and very ungrateful to the palate. The bark which comes from Guanaco, consists of much thicker, coarser, and flatter pieces; externally of a dark brown colour, approaching to black, but internally of the same colour with the Loxa bark, which it likewise resembles in all its other sensible qualities.

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* Mr. Arnot, who has described the process of collecting the bark, says, "As much care as possible must be taken that the bark is not cut wet; should it so happen, it is to be carried directly down to the low country to dry, for otherwise it loses its colour, turns black, and rots; and if it be any time in the hut without being spread, it runs the same risk; so that while the Indians are cutting, the mules, if the weather permits, ought to be carrying it down to the place appointed for drying it, which is done by spreading it in the open air, and frequently turning it."

The Red Peruvian bark comes to us generally in much larger, thicker, and flatter pieces than either of the former; it is sometimes found also in the form of quills. It is heavy, firm, sound, and dry; friable between the teeth, does not separate into fibres, but breaks short, close, and smooth. It has three layers, the outer of which is thin, rugged, of a reddish brown colour, and, like the Loxa bark, frequently covered with moss or lichen; the middle layer is thicker, more compact, darker coloured, very resinous, brittle, and is the first to yield to the pestle; the inner layer is more woody, fibrous, and of a brighter red; when powdered, its colour resembles that of the Armenian bole.

The yellow Peruvian bark has only been introduced into European practice since 1790, when it was sent from Santa Fé by Mutis. It consists of pieces about six inches in length, thicker, and less rolled up than the red or pale bark; its inner surface is of a deeper red; the epidermis, which is as thick as the bark itself, is sometimes wanting.* It is lighter, and more friable than the pale bark; its fracture is fibrous, and when reduced to powder it is of a paler colour. Its taste is much more bitter, astringent, and stronger, but its smell weaker. Its decoction when hot is redder, but when cold paler; and its solution strikes a deeper colour with the sulphate of iron. According to the opinion formerly entertained, it contained more of the active constituents, than either the pale or the red bark; was a more powerful medicine, and indeed, according to Mutis, was the only one which was directly febrifuge. The fallacy of these opinions are now evident.

Peruvian bark yields its virtues to both cold and boiling water; but the decoction is thicker, gives out its taste more readily, and forms an ink with a chalybeate, more suddenly than the fresh cold infusion; † the latter however contains as much extractive matter, but more in a state of solution, and its colour, on standing with the chalybeate, becomes darker, while that of the decoction becomes fainter: after some time, the addition of a chalybeate renders them green, when they are found to be in a state of fermentation.‡ Mild cid matter, which becomes brittle when cold, and is very bitter; this matter he digests in hot water, acidulated by sulphuric acid, and the liquor, when cold, gives pure sulphate of quinine, in the form of perfect white crystals. These crystals are soluble in boiling water, especially if it is weakly acidulated; they are but little soluble in cold water, without the addition of an acid.

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* The epidermis, when present, should always be removed before powdering.

† We have always considered the cold infusion one of the most elegant preparations of bark, particularly as a tonic, and for a weak stomach. The recent chemical preparations of this medicine will however shortly set aside all the extemporaneous preparations which have hitherto been in use.

‡ Dr. Duncan says, that "in all cases where an excess of the chalybeate is used, a green colour is produced." These effects were ascribed to the presence of tannin, but Dr. Maton found that Cinchona contained very little tannin.

CHEMICAL PROPERTIES OF CINCHONINE AND QUININE. Cinchonine is white, translucent, crystallizable in needles, and soluble only in seven hundred parts of cold water. If dissolved in alcohol, or an acid, its taste is powerfully bitter, and resembles that of the grey bark. It is dissolved in very small quantities by the fixed or volatile oils, and sulphuric ether. With acids, it forms salts which are more or less soluble. According to the analysis of M. Brande, cinchonine consists of about—

Carbon	80.20
Nitrogen	12.85
Hydrogen	6.85
	99.90

QUININE is white and incrystallizable; it is as little soluble in water as cinchonine, much more bitter to the taste, as are also most of its salts, which are distinguished by a pearly appearance. It is very soluble in ether, while cinchonine is very little so: this difference serves as well to distinguish their bases, as also to separate them when united. Quinine likewise differs from cinchonine in containing oxygen, and that in nearly as large a proportion as hydrogen. According to M. Brande, its ultimate components are nearly as follows:—

Carbon	73.80
Nitrogen	13.
Hydrogen	7.65
Oxygen	5.55
	100.

MEDICAL PROPERTIES OF PERUVIAN BARK. There is no satisfactory account at what time, or by what means, the efficacy of Peruvian bark, as a medicine, was first discovered; and it is even a disputed point, whether or not it was known to the native Americans before the Spanish invasion of their territories. The fables that have been related on this subject, are not worth recording at the present day, as it is certain that this medicine was very little known until about 1638, when the lady of the Spanish viceroy of Peru, the Countess del Cinchon, was cured of intermittent fever by the use of it.[*] On her recovery, she distributed a large quantity of the bark to the Jesuits, by whom it was first introduced into Europe, and in whose hands it acquired considerable reputation. Louis XIV., when Dauphin, is said to have been one of the first in Europe who experienced its efficacy. Notwithstanding this, the use of it was reprobated by many eminent physicians, on its first introduction into Europe: and at different periods long after it was considered a dangerous remedy. But the use of a remedy is one thing, and the abuse of it is another: and we have no doubt that the disrepute into which bark fell, was the consequence of its being improperly administered by unskilful practitioners, who are too frequently infatuated with newly-discovered nostrums. That there are many cases, and many stages of fever, in which the administration of bark would be extremely hurtful, is quite certain; but, at the present day, to insist upon its virtues as a medicine, would be truly a work of supererogation, and it will only be necessary to state, generally, those cases in which bark has been, and still continues to be exhibited. It was first introduced into Europe for the cure of intermittent fevers, but considerable differences of opinion have prevailed with regard to the best mode of exhibition: some practitioners giving it just before the fit, others immediately after it, and some during the fit; some again have given repeated doses between the fits, and this appears from experience to be the most proper, if not the only proper time for its exhibition, and is, we believe, the present practice of the most eminent of the profession. Dr. Cullen says, "I am satisfied that giving a large dose of the bark immediately before the time of accession is the most proper practice." However, to enter more particularly upon this part of the subject, would be invading the province of the medical writer, and we must therefore dismiss it. Cinchona has also been used by some practitioners in continued fevers, and Dr. Woodville, after remarking that it may be employed with equal success in remittent and intermittent fevers, says, "In continued fevers, or typhus of the nervous or putrid kind, the bark is very generally used, as well suited to counteract the debility or putrescency which marks the progress of the disorder." There is however, he adds, " one state not unfrequently present in these epidemic fevers, in which the bark is found to be hurtful; *i. e.* symptoms of conjestion, or topical inflammation of the head, manifested by headache, redness of the eyes, and phrenitic delirium." From our own experience, we would say that bark should never be resorted to in any case of fever, until the primæ viæ had been well cleared, and the stomach in a proper state to receive it; neither should it be given when the head is engaged, or during the dry hot state of the skin, accompanied, as it usually is, with a hard pulse. Dr. Haygarth, and some practitioners of his day, recommended the use of bark in acute rheumatism; we however agree with Dr. Cullen, who says, " As I consider this disease as essentially consisting in a phlogistic diathesis, I hold the bark to be absolutely improper, and have found it manifestly hurtful, especially in its beginning, and in its truly inflammatory state." In confluent small pox, we have given the decoction of bark, conjoined with a few drops of nitrous or sulphuric acid, with the greatest success after the inflammatory symptoms had subsided; not, as some former writers have said, to promote a languid eruption, and suppuration of the pustules, but to prevent putrescence and gangrene. In gangrenous sore throat, the decoction of bark, with sulphuric acid, is most advantageously used as a gargle; and indeed in every species of gangrene, its use, both internally and externally seems to be indicated. In different forms of the venereal disease, bark has been recommended by Mr. Pearson of the Lock Hospital, to reduce incipient bubo, to heal ulcers of the tonsils, and to cure gangrenous ulcers arising from the venereal. In passive hæmorrhagies, and other increased discharges, it has been much used, as well as for obviating the disposition to nervous and convulsive diseases; * and joined with sulphuric acid, it has been resorted to in cases of phthisis, scrofula, ill conditioned ulcers, rickets, and scurvy. In contagious dysentery, after due evacuation, it has been used, taken internally, and by injection, with and without opium. In dropsy arising from debility, it is often alternated or conjoined with diuretics, and frequently prevents a fresh accumulation of water: we have generally found however the different preparations of iron more effectual for this purpose.

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[*] Hence the name Cinchona; it has also been called Jesuits' bark, and Cardinal de Lago's powder, this prelate having bought a large quantity of it for the use of the religious poor in Rome.

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* Its success, we think, here depends upon its action as a tonic.

There are various modes of exhibiting bark, depending on the state of the stomach, the nature of the disease, the constitution of the patient, or perhaps the fancy of the physician. In powder, it is given mixed, either with wine, with pure water, or with some of the aromatic waters; and simply bruised, it is used in decoctions, hot and cold infusion, and tincture; lastly, an extract is prepared by decoction, and kept in two states; the one hard and pulverizable, the other soft, and of a proper consistence to make into pills. As bark is sometimes found to excite purging or nausea, it is frequently joined with an opiate, or with carbonic acid. As there is every reason to think, that the newly discovered preparations of this medicine will very soon supersede the use of the bark in substance, we do not deem it necessary to enter further into its mode of exhibition, but shall proceed to notice the medical properties of these substances. M. Magendie says, "A sufficient number of cases induce me to believe that these two alkalies (cinchonine and quinine) possess the medical properties of the cinchonas, and may be substituted for them on all occasions." In the twelfth volume of the Medico-Chirurgical Transactions, Dr. Elliotson has sufficiently established the febrifuge efficacy of both simple quinine, and of the sulphate, which is further confirmed by Dr. Dickson of Clifton, in the Edinburgh Medical and Surgical Journal for October 1823. But indeed it is needless now to insist upon the value of these preparations, since in the ague counties in England their use is become general, and seldom fail to effect a cure. M. Magendie says, the sulphates are the preparations most commonly employed, and he recommends from one to eight grains to be given in the twenty-four hours.* "Some physicians," he adds, "have thought it necessary to carry the dose much higher, but in general the success has not answered their expectations, and several patients have experienced somewhat severe accidents, such as great agitation, with strong cerebral excitement." Cinchonine is thought to possess the febrifuge properties in a less degree than quinine; the sulphate of the latter is the preparation now generally employed in England, and the following seems to be the best mode of exhibiting it: dissolve the sulphate in a little lemon juice, and then add a sufficient quantity of pure water, or of cinnamon or peppermint water, to make a draught; in this way two grains may be given for a dose, and repeated three or four times in the twenty-four hours. The French apothecaries have a number of formularies for the exhibition of the cinchonine and quinine, such as tinctures, syrups, vinous infusions, &c.; for these we must refer the reader to Magendie's Formulaire. It is to be regretted that the present very high price of these valuable medicines, almost excludes the poor from the advantages of them.

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* According to Dr. Paris, eight grains of the sulphate of quinine is equal to ʒi. of bark.

Externally, Peruvian bark is used in substance, as an application to ill-conditioned carious or gangrenous ulcers; in the form of clyster, it may be given in substance, decoction, or extract; the decoction is likewise an excellent astringent gargle or wash; and the powder is used as a tooth powder, for spongy and bleeding gums.

Off.	The Bark of the Tree.
Off. Pp.	Decoctum Cinchonæ, L. E. D.
	Extractum Cinchonæ, L. E.
	———— Cinchonæ Resinosum, L. D.
	Infusum Cinchonæ, L. E. D.
	Tinctura Cinchonæ, L. E. D.
	———— Cinchonæ Composita, L. E. D.

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LYTHRUM SALICARIA.

*Loose-strife, or Purple Willow Herb.**

Class DODECANDRIA.—*Order* MONOGYNIA.

Nat. Ord. CALYCANTHEMÆ, *Linn.* SALICARIÆ, *Juss.*

GEN. CHAR. *Calyx* twelve-toothed, inferior. *Petals* six, inserted into the calyx. *Capsule* two-celled, with many seeds.

SPEC. CHAR. *Leaves* opposite, lanceolate, heart-shaped at the base. *Flowers* in whorled leafy spikes. *Stamens* twelve.

THIS species of Lythrum is an indigenous perennial plant, flowering from July to September. It is found wild on the banks of rivers and ponds, and other moist situations, in almost every country of

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* Fig. *a*. the capsule spread open. *c*. Seeds. *d*. The corolla spread open. *e*. The calyx.

Europe. It is a handsome plant, rising to the height of three or four feet; the root is woody, branched, spreading, and furnished with many fibres; the stem is erect, leafy, quadrangular, but often hexagonous towards the lower part, of a reddish colour, smooth or downy; the leaves vary in length, are opposite, sessile, lanceolate, entire, cordate at the base, smooth on the upper surface, and somewhat pubescent beneath; the flowers arise from the axillæ of the leaves, and terminate the stem in a spike of whorls; the calyx is inferior, cylindrical, striated, downy, and divided at the margin into twelve segments; of which six are long, awl-shaped and erect; the others smaller, ovate, concave, and bent inwards. The petals are six, elliptic-oblong, undulated, and of a reddish purple colour; the twelve filaments are thread-shaped, alternately shorter and inflected, and bear roundish anthers; the germen is ovate-oblong, supporting a simple style, crowned with a capitate stigma; the capsule is small, elliptical, two-celled, inclosed in the tube of the calyx, and contains several small seeds.

QUALITIES, &c. Loose-strife has little or no odour; its taste is herbaceous and sub-astringent. Its active properties are extracted both by aqueous and spirituous liquors: the watery decoction is mucilaginous, and strikes a black colour with the sulphate of iron, hence its components appear to be chiefly extractive, combined with a small portion of tannin.

MEDICAL PROPERTIES AND USES. Loose-strife is astringent and tonic; it has been chiefly celebrated as a remedy in diarrhœa, for which disorder it has been long a favorite and popular medicine in Ireland. De Hean, Störk, and other continental physicians, have also prescribed it with much success in laxity of the intestines, &c.; in dysentery it has likewise been useful, but in most cases it is proper to give some aperient previous to its exhibition. It is usually given in decoction, one ounce of the dried herb to one pint of water, of which two or three ounces may be taken twice a day: the powder may be given in doses of one drachm, or more, night and morning.

Off. The Herb.

STRYCHNOS NUX VOMICA.

Vomic or Poison Nut.[*]

Class PENTANDIA.—*Order* MONOGYNIA.

Nat. Ord. LURIDÆ, *Linn.* APOCINEÆ, *Juss.*

GEN. CHAR. *Calyx* five-cleft to the base, small, deciduous. *Corolla* monopetalous, five-cleft, acute. *Filaments* longer than the corolla, simple. *Berry* one-celled, and full of pulp.

SPEC. CHAR. *Leaves* ovate. *Stem* unarmed.

THE NUX VOMICA, Lignum Colubrinum, and Faba Sancti Ignatii, were long known as narcotic poisons brought from the East Indies, while the vegetables that produced them were either unknown, or at least not botanically described. Through the researches of Linnæus the Nux Vomica was at last found to be the tree described under the name Caniram, in the Hortus Malabaricus; to this genus he also referred the Colubrinum; the Faba Sancti Ignatis was subsequently found to belong to a different species, to which the generic name Ignatia was given. The Strychnos is a native of the East Indies, growing abundantly on the coasts of Malabar and Coromandel; it was introduced into England in 1778, by Dr. Russel,[†] but has never been cultivated with success in this country.

This tree grows to rather a large size, sending off numerous strong branches, covered with dark grey smooth bark; the smaller branches have a knotty, jointed appearance, and are covered with bark of a dark green colour. The leaves arise at the joints, in pairs, standing upon short foot-stalks; they are broad, ovate, pointed, and entire, with three or five ribs, and on the upper side of a shining green colour: they vary in length from two to four inches, and the larger leaves are as much as four inches broad. The flowers terminate the branches in a kind of fasciculated umbel; they are small, of a greenish-white colour, and disagreeable smell. The calyx is small,

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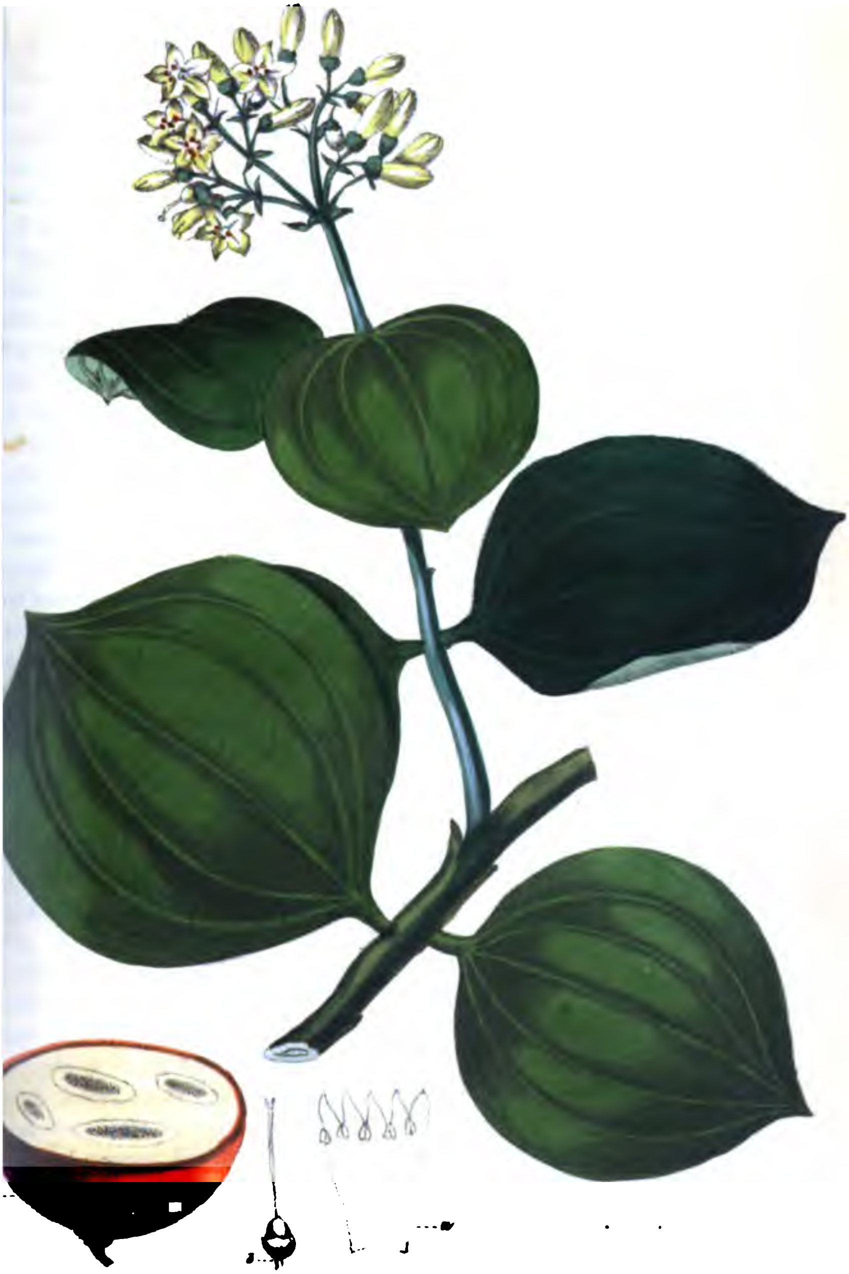
[*] Fig. *a.* the corolla spread open (magnified.) *b.* The pistillum, magnified. *c.* Transverse section of the fruit.

[†] Hortus Kewensis.



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Strychnos Nux vomica

tubular, five-toothed, deciduous; corolla monopetalous; tube inflated at the middle, very long, and cut at the limb into five small segments; the filaments are five, short, fixed at the mouth of the tube, and furnished with simple roundish anthers; the germen is roundish, superior, and supports a simple style, the length of the tube of the corolla, and terminated by a blunt stigma; the fruit is a round, smooth, pulpy berry, about the size of a large apple; the rind of this berry, which, when ripe, is of a deep yellow colour, by its hardness partakes somewhat of the nature of a shell; the fruit, however, must be considered of the drupous kind; in the pulp are contained generally five seeds, which are round and flat, about an inch in diameter, of a grey colour and covered with downy, radiated hair, internally of a hard, tough, horny consistence. These seeds are the officinal Nux Vomica.

SENSIBLE PROPERTIES. This nut is extremely bitter to the taste, but has no remarkable smell. It consists chiefly of a gummy matter, which is moderately bitter; the quantity of resinous matter is inconsiderable, but is intensely bitter: rectified spirit has been found the best menstruum for extracting its active principle. From the recent experiments of M. Pelletier, it appears that Nux Vomica contains two very active alkaline substances, to which the names STRYCHNINE and BRUCINE have been given, and to which it owes its deleterious and medicinal properties. These substances we shall notice in their proper places.

MEDICAL PROPERTIES OF NUX VOMICA. This vegetable production has been very rarely employed in these countries, but on the Continent, and particularly in Germany, it has been very generally recommended in a variety of diseases, and by a succession of authors, as an antidote to the plague, a febrifuge, vermifuge, and as a remedy in gout, rheumatism, mania, hysteria, canine madness, &c. In Sweden it is said to have been successfully used in dysentery; but Bergius relates, that in one case where he had tried it, the flux was suppressed for twelve hours, but it afterwards returned; and in another case, a woman, thirty-two years of age, who took a scruple of it night and morning, for two successive days, was seized with convulsions and vertigo; the dysenteric symptoms returned, and were cured by other medicines, but the effects of the Nux Vomica continued for some time after: Bergius therefore recommends it to be given in only small doses, from five to fourteen grains, as a tonic and anodyne. Dr. Good, of our own country, was never able to give more than seven grains of the powdered nut for a dose, without the head being affected by vertigo.* Loureiro has recommended it as a valuable remedy in fluor albus;† he roasts the nut till it becomes black and friable, by which means he says its medicinal use is rendered safe, without impairing its efficacy. In the East Indies the root of this tree is used by the natives to cure intermittent fevers, and the bites of venemous snakes, and the seeds are employed in the distillation of spirits, to aid their intoxicating effects; a purpose to which it is said to be sometimes applied in this country, in the manufacture of beer. But it is for the cure of paralysis that the Nux Vomica has of late years acquired its chief celebrity; Dr. Fouquier, of the Hospital de la Charité at Paris has tried it very extensively, and in many cases, he says, with perfect success. He gives it in the form of powder, or alcoholic extract; four grains of the first, or two of the latter, from two to six times a day. In half an hour after administration the paralyzed muscles have, in some cases, begun to evince contraction; sometimes, however, it produces a temulent effect, stupor, and a sense of intoxication, and when pushed too far, general tetanus, and other distressing symptoms. Dr. Good says, "like all other powerful medicines, in their first and indiscriminate use, the Nux Vomica appears sometimes to have been highly beneficial, sometimes mischievous, and sometimes to have produced violent effects upon the nervous system, without an important change of any kind."‡ M. Magendie having, by a series of experiments,§ ascertained that the whole of the family of plants of the Strychni Amari had the singular property of acting immediately and powerfully on the spinal marrow, without affecting, except indirectly, the functions of the brain, thought they might be advantageously applied to the treatment of disease: he soon put his newly discovered remedy boldly to the test, and his conjecture, he says, was "verified by numerous *experiments* made at the bed-side." He adds, "I have seen the best effects follow the employment of the alcoholic extract of the Nux Vomica, not only in cases of both partial and general paralysis, but also in many other states of weakness of the constitution, both general and partial." M. Magendie gives the following directions for preparing the extract:—

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* We should imagine, from these facts, that it is a very uncertain remedy, either from some accidental difference in the seeds, or from its acting differently on different constitutions, as we have ourselves known ten grains for a dose to be given to an infant only two years old.

† Vide Flora Cochin. Chin. vol. i. p. 125.

‡ Good's Study of Medicine.

§ Read before the French Institute in 1809.

"Take a determinate quantity of rasped Nux Vomica, exhaust it by repeated maceration in alcohol of 40°. Baumé, sp. gr. .817 British, and evaporate it slowly to the consistence of an extract." "A grain (gr. 0.82 troy) of this extract, absorbed from any part of the body, or mixed with food, destroys a dog of considerable size, by inducing paroxysms of tetanus, which, by their continuance, stop the respiration, being enough to produce complete asphyxia; when the dose is much stronger, the animal appears to perish entirely from the action of the substance on the nervous system."* The action of this extract on the healthy human body is precisely the same; and if the dose be sufficiently large, death speedily follows, with the same symptoms. The traces of the asphyxia, which caused death, are alone observable on dissection. On man when affected with paralysis, the effect is the same; but it is particularly manifested in the paralyzed parts: it is there the tetanic symptoms occur, with a creeping sensation which announces the action of the remedy; a local perspiration in the same parts also breaks out. In cases of hemiplegia, the halves of the body exhibit a striking contrast; one side being at rest while the other is violently agitated; tetanic shocks soon succeed, and an abundant perspiration breaks out. "In one female the affected side was covered with a peculiar eruption, when the opposite shewed no trace of it; a decidedly bitter taste was likewise perceived on one side of the tongue, while no such sensation occurred on the other." When a larger dose is given, the two sides of the body participate unequally in the tetanic effect, so that the patient is sometimes thrown out of bed by the violence of the paroxysm. When given in very small doses, the extract has not any perceptible effect immediately, and some days elapse before its advantageous or noxious properties can be appreciated.† M. Magendie says that this extract may be given in all diseases attended by debility, local or general, and paralyses of all kinds, general or partial; also in cases of weakness of the genital organs, incontinence of urine, sluggish digestion, and in states of extreme debility, attended by an irresistable disposition to sleep. The extract is administered in the form of pills, containing a grain (gr. 0.82) each; one or two may at first be given daily, and gradually increased until the desired effect is produced; the medicine must then be discontinued to avoid accidents, and if it has been suspended for some days, it is necessary to recommence with the smaller doses, gradually increasing them as before. Sometimes it is necessary to increase the dose to twenty-four or thirty grains in the day, before the tetanic convulsions are produced; but generally from four to six grains will be found sufficient.* When it is wished to produce only the slow effects, from a grain to a grain and a half in the day is sufficient. M. Magendie has also prepared a tincture for this purpose, with the dry extract of the Nux Vomica and alcohol.

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* Magendie, Formulaire.

† Ibid.

STRYCHNINE. We have said that M. Pelletier discovered the existence of two alkaline substances, STRYCHNINE and BRUCINE, in the Nux Vomica, and to which, but particularly the former, it owes its active properties: these alkalies are likewise found in the Strychnos Ignatii and Strychnos Colubrina. Strychnine is prepared as follows:—"Add a solution of liquid subacetate of lead to a solution in water of alcoholic extract of Nux Vomica, until no more precipitate is thrown down; separate the lead by sulphuretted hydrogen; filtrate it, and boil with magnesia, which will unite with the acetic acid, and precipitate the Strychnine. Wash the precipitate in cold water; redissolve it in alcohol, to separate the excess of magnesia, and by evaporating the alcohol the Strychnine is obtained in a state of purity: if not perfectly white, it must be redissolved in acetic or hydrochloric acid, and reprecipitated by means of magnesia."† When slowly crystallized, it appears under the form of microscopical crystals, forming four-sided prisms, terminated by pyramids, with four flattened or depressed faces. Crystallized rapidly, it is white and granular; it is insupportably bitter to the taste, has no smell, is not changed by exposure to the air, is neither fusible nor volatile; is decomposed by a degree of heat inferior to that which destroys most vegetable substances. Exposed to the naked fire, it swells, becomes black, and gives out an empyreumatic oil, a little water, acetic acid, carbonic acid gas, and carbonated hydrogen; it is scarcely soluble in water, requiring 2500 parts of boiling water. The principal character of Strychnine consists in its forming neutral salts when united with acids; these salts are crystallizable, and for the most part soluble, and are much more active than the simple substance; it is therefore thought that when the system is habituated to the action of pure Strychnine, the salts may be substituted, without increasing the dose. M. Magendie has only used the sulphate; which given in a dose of one-twelfth of a grain, produced decided relief in a case of paraplegia.

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* M. Magendie says, "It is better to give the pills in the evening, because night is the best time for observing the phenomenon which we wish to produce.

† Magendie's Formulaire.

The action of Strychnine on man and animals is exactly like that of the alcoholic extract of Nux Vomica, but it is much more active; one-eighth of a grain is sufficient to kill a large dog; and one-fourth of a grain often produces very marked effects on the human body when in health. M. Magendie thinks that Strychnine may be used in all cases where the resin of Nux Vomica would be serviceable; we think, however, that it is one of those dangerous and even uncertain remedies which ought only to be resorted to, if at all, in the most desperate cases. M. Andral says, that the action of Strychnine is so violent, that it ought not to be employed except with the greatest precaution; its effects likewise, he found to vary very considerably: in one case, one-twelfth of a grain was sufficient to produce serious symptoms, whilst in another more than a grain was given almost with impunity. When employed in cases where paralysis is connected with an inflammatory condition of the brain or spinal marrow, he thinks it may probably aggravate the symptoms. It is said to be more especially useful in that kind of paralysis, the cause of which cannot be referred to any injury of the nervous centres; particularly to that species to which persons are liable who meddle with the preparations of lead. Some cases of cure by the use of Strychnine and Brucine, under those circumstances are recorded. Strychnine is usually given in pills, containing from one-twelfth to one-eighth of a grain each.

Brucine. When following the process already detailed for the separation of Strychnine, care is taken to crystallize the substance several times in alcohol; it is pure, and free from Brucine, which latter being much more soluble in alcohol, remains in the alcoholic mother waters, from which this substance may then be obtained by further evaporation.* The presence of Brucine in Strychnine, M. Majendie says, is no great inconvenience, as the Brucine is possessed of properties similar to those of Strychnine, only less active. "In the St. Ignatius Bean," says he, "and in the Upas, Brucine bears the same relation to Strychnine that Cinchonine does to Quinine in the

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* Brucine had been previously found in the *Angustura Spuria*, by MM. Pelletier and Caventou.

RADCLIFFE

cinchonas: the most active cinchonas contain the most quinine, whilst St. Ignatius's bean and the Upas, which are much more active than the Nux Vomica, contain little Brucine, and much Strychnine: the Strychnine is almost pure in the Upas."* "Crystallized Brucine is a true hydrate; its affinity for water is very considerable, whilst pure Strychnine is not susceptible of passing into a state of hydrate. Brucine is intensely bitter, sparingly soluble in water, although more so than Strychnine; when regularly crystallized it is under the form of oblique prisms, with parallelogramic bases; it fuses at a temperature nearly equal to that of boiling water, and in cooling assumes the consistence of wax. Like Strychnine, it combines with acids, and forms neutral salts. By analysis it appears to consist of,

Carbon	75.04
Azote	7.22
Hydrogen	6.52
Oxygen	11.21
	100

Brucine appears to possess the properties of Strychnine, but in a much milder degree; so that it may be given to the extent of two or three grains, in the same cases where Strychnine would be indicated. M. Magendie has administered Brucine with success in two cases of atrophy; one of the leg, and the other of the arm: the patient took six pills in the day, of one-eighth of a grain each.

DELETERIOUS EFFECTS OF NUX VOMICA. Sufficient has already been said to show that this substance, if incautiously taken, is highly poisonous, and it is therefore unnecessary to swell the subject by quoting instances. As an animal poison it has been long known; the quantity of the seed necessary to produce this effect on a strong dog need only be a scruple; a rabbit was killed by five, and a cat by four grains; and of four persons who are recorded to have perished by it, one was a girl eleven years of age, to whom fifteen grains were given in two doses, for the cure of ague. The effects of this poison upon animals, even of the same species, is rather uncertain, and not always in proportion to the quantity taken. With some animals it produces its effects almost immediately; with others not

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* Brucine is obtained in large quantities from the bark of the Brucea Antidysenterica, by a process nearly similar to that directed for the preparation of Strychnine.

for several hours, when laborious respiration, followed by torpor, tremblings, coma, and convulsions, usually precede the spasms or tetanus with which it extinguishes life. Its effects upon man are nearly the same, and the *post-mortem* examination, both of men and animals, shews that it acts immediately on the nervous system.

◆

WINTERA AROMATICA.

*Winter's Bark Tree.**

Class POLYANDRIA.—*Order* TETRAGYNIA.

Nat. Ord. OLERACEÆ, *Linn.* MAGNOLIACEÆ, *Juss.*

GEN. CHAR. *Calyx* three-lobed. *Petals* six to twelve. *Germens* club-shaped. *Style* none. *Berries* four to eight, obovate.

SPEC. CHAR. *Peduncles* aggregate, terminal. *Pistils* four.

THIS tree is a native of the Straits of Magellan and Terra del Fuego, growing in the vallies which are exposed to the sun. It was first discovered by Captain John Winter, who accompanied Sir Francis Drake in the expedition destined for the South Seas in the year 1577. During the time Captain Winter's ship remained in the Straits, in consequence of stress of weather, his ship's crew made use of the bark as spice. On his return to England, he brought specimens of the bark with him, which Clusius named, in honour of the discover, Cortex Winteranus.

The Wintera Aromatica is a very large evergreen tree, rising to the height of fifty or more feet; the bark covering the trunk and older branches is greyish and wrinkled, on the younger branches green and smooth; the leaves are elliptical, obtuse, smooth, entire, two inches in length, of a shining green on the upper surface, paler

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* Fig. *a.* a petal. *b.* The stamens. *c.* The calyx.

colour underneath, and stand irregularly upon short thick petioles; the flowers are axillary, proceeding from the top of the branches, and arise two or three together upon longish peduncles; the calyx is of one leaf, and divided into three unequal pointed segments; the corolla consists of seven unequal, ovate, obtuse, concave, erect, white petals; the filaments are numerous, shorter than the petals, and support large oval anthers; the germens are turbinated, crowned with sessile, divided, flat stigmas; the berries are of a light green colour, spotted with black, containing four triangular, black, aromatic seeds.*

SENSIBLE QUALITIES, &c. Winter's bark is of a dark brown cinnamon colour, with an aromatic odour, and a permanent hot spicy taste, though slowly imparted. Its virtues reside in a volatile oil, which may be obtained separate by distillation with water; this oil is very hot and stimulating. From the analysis of M. Henry it also appears to contain a resin, colouring matter, sulphate of potass, oxalate of lime, oxide of iron, and tannin.† Winter's bark is seldom to be met with in the shops, Canella Alba being generally substituted for it, and indeed often confounded with it, although the former may be readily distinguished from the latter, being in much larger pieces, and of a darker colour.

MEDICAL PROPERTIES AND USES. Winter's bark is stomachic and carminative, hence it forms an useful adjunct to simple bitters in many stomach disorders, arising from a weakened state of this organ. It has also been found an efficacious antiscorbutic, and in this character it was formerly held in much estimation, but in modern practice it is but little used.‡ It may be given in the form of powder, infusion, or tincture, but there is no officinal preparation of it.

Off. The Bark.

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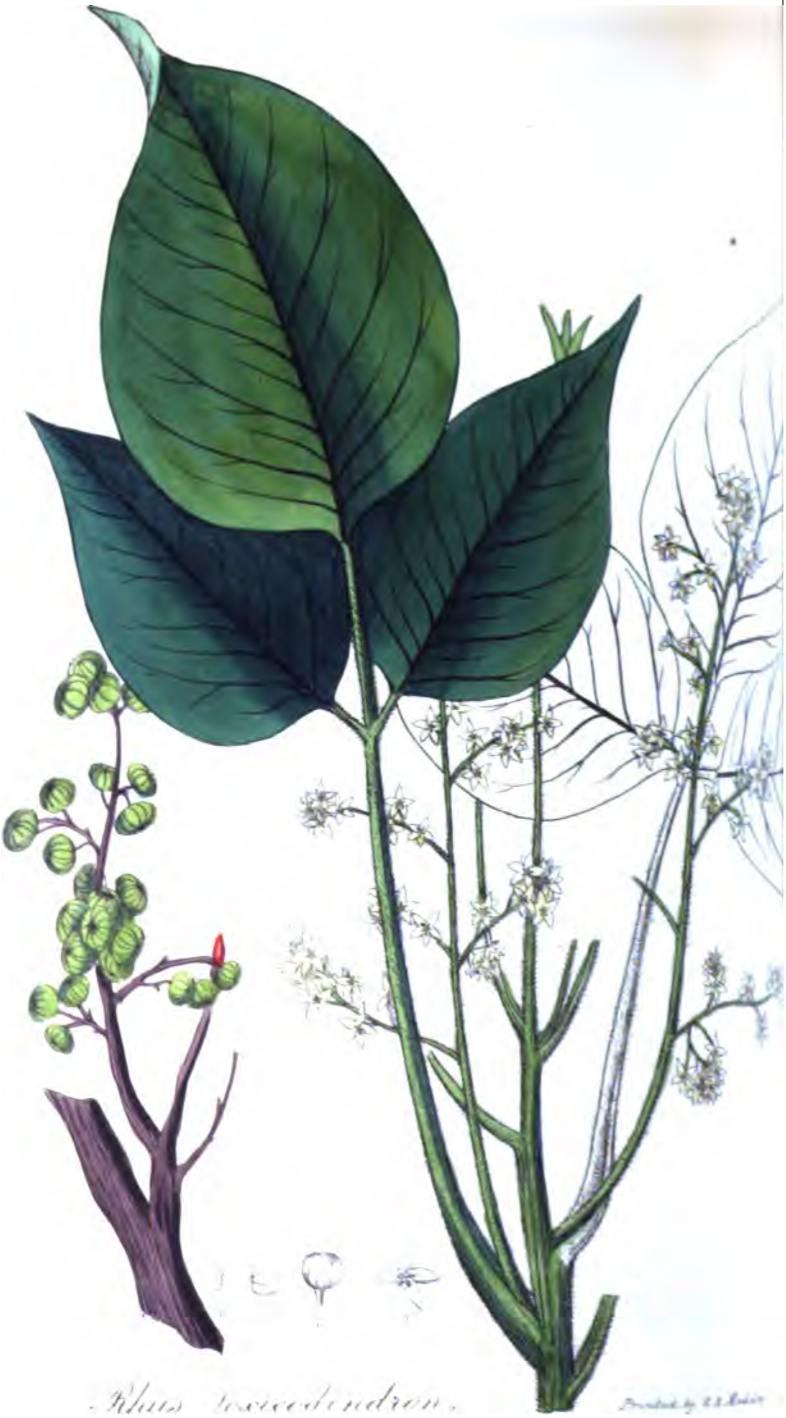
* The botanical character of this tree was unknown till the return of Capt. Wallis from the South Seas, in the year 1768, when Dr. Solander wrote a description of it, which was published in the fifth volume of the Medical Observations and Enquiries.

† In this circumstance it differs from Canella Alba, which does not contain tannin.

‡ It is much used in Brazil as a spice.



Rhus toxicodendron.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] three [illegible]

[illegible] twice as long [illegible]

[illegible]

[illegible]

RHUS TOXICODENDRON.

Pubescent Poison Oak, Sumach.[*]

Class PENTANDRIA.—*Order* DIGYNIA.

Nat. Ord. DUMOSÆ, *Linn.* TEREBINTACEÆ, *Juss.*

GEN. CHAR. *Calyx* five-parted. *Petals* five. *Berry* one seed.

SPEC. CHAR. *Leaves* ternate. *Leaflets* petioled, angled, pubescent. *Stem* rooting.

THIS species of sumach is a native of North America, and very common in Carolina. It was first cultivated in England about the year 1640. It is a small tree, seldom exceeding three feet in height; the root is woody, fibrous, horizontal, and sends up many woody stems, which divide into slender branches, covered with a greyish brown bark; the leaves are supported upon long petioles, and arise alternately upon the branches; composed of three ovate, pointed leaflets, about three inches long and two broad; the terminal leaflet is considerably larger than the two lateral, which last are nearly sessile: they are sometimes angular, and sometimes entire, of a deep shining green colour above, hoary beneath; the fructification is diœcious; the male flowers are produced in close short spikes, and arise from the sides of the stalks; the calyx is composed of five ovate, smooth, caducous leaves; the corolla consists of five greenish petals, twice as long as the calyx; the stamens are shorter than the corolla, attached to the receptacle, and support yellow, ovate anthers, excavated by a longitudinal groove; the female flowers are produced in loose panicles; the pistillum is composed of a roundish hairy germen, supporting a thick, short, smooth style, crowned with three sessile stigmas, one of which is usually larger than the others; the fruit is a striated berry, containing one seed. In this country one-celled, and of a bright yellow, with the remains of the hard, persistent calyx at the base; the nut contains a cartilaginous hard kernel, which yields the Oleum Palmæ of the shops. To obtain the oil, the nuts are first slightly roasted and cleaned, and then ground to a paste in a mill, and on a levigating stone: this is then mixed with $\frac{3}{10}$ths its weight of boiling water and put into a bag, and the oil expressed between two heated plates of iron. It is afterwards purified by washing in hot water. The kernel yields from $\frac{1}{16}$ to $\frac{8}{16}$ of oil.

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[*] Fig. *a.* the male flower. *b.* The fruit. *c.* Magnified anthers. *d.* The pistillum.

QUALITIES, &c. Palm oil, when good, has the consistence of butter, of a golden yellow colour, and the odour of violet or Florentine orris root. When well preserved, it keeps several years without becoming rancid: by long keeping however it loses its colour and odour. It is said to be often adulterated, and sometimes imitated, with axunge, coloured with turmeric.

MEDICAL PROPERTIES AND USES. Palm oil is never prescribed internally, and only externally as an emollient ointment, in which form we deem it preferable to hog's-lard, more especially as a vehicle for more active applications. Of late it has been imported in considerable quantity, and used to manufacture the toilet soap, called palm soap.

Off. The Fixed Oil of the Nut.

◆

AVENA SATIVA.

Common Oat.[*]

Class TRIANDRIA. *Order* DIGYNIA.

Nat. Ord. GRAMINA, *Linn.*

GEN. CHAR. *Calyx* two-valved, many-flowered, with a twisted awn on the back.

SPEC. CHAR. *Panicled.* *Calyces* two-seeded. *Seeds* very smooth, one-awned.

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[*] Fig. *a*. the flower. *b*. The pistillum magnified.

The common Oat has been long cultivated in Europe, but it has never been satisfactorily ascertained if it be a native, or a naturalized production. It was found by Commodore Anson growing wild upon the Island of Juan Fernandez, on the coast of Chili. In the north of Europe many varieties of this species of Avena are cultivated; and in Scotland, the northern parts of England, Sweden, Siberia, and Norway, oats form the chief part of the vegetable diet of the inhabitants.

The root is annual and fibrous, sending up a straw or culim, which rises about two feet in height; the inflorescence is produced in a loose panicle, with the subdivisions on long pendulous peduncles; the two glumes of the calyx are marked with lines, pointed, unequal, and longer than the flower; there are generally two flowers and seeds in each calyx: they are alternate, conical, the smaller one awnless, the larger puts forth a strong, two-coloured, bent awn, from the middle of the back; both seeds are fertile. There are several varieties of this grain cultivated in England, but that which is called the potatoe oat is considered the best.

Sensible Qualities, &c. Oats are inodorous, and have a very slight bitter taste; they are chiefly composed of fecula or starch, combined with a portion of saccharine matter, bitter principle, and fixed oil. Vauquelin found in the ashes of oats, phosphate of lime and silica.

Medical Properties and Uses. Oats must be considered more an article of diet than of medicine. When freed from their cuticle, they are denominated grits, and are much used for making gruel, or decoctions, which preparations are considered demulcent, cooling, and nutritive; hence they are much used in all inflammatory diseases and febrile affections. Oats when used as a food are commonly ground into meal, and formed into cakes with salt and water, and baked, or, with the same additions, boiled to form porridge, &c. An infusion of the husks in water, kept till it becomes acidulous, when boiled to the consistence of a jelly, is considered nutritious, and easy of digestion. The meal boiled in water to a proper thickness, forms an excellent suppurative poultice.

Off. The Seeds of the Oat decorticated, called Grits.

HORDEUM DISTICHON.

Common Barley.[*]

For *Class*, *Order*, and *Nat. Ord.* see preceding Article.

GEN. CHAR. *Calyx* lateral, two-valved, one-flowered, threefold.

SPEC. CHAR. *Flowers* all perfect, awned; two of the rows more erect than the rest.

THE native country of this plant has not been satisfactorily ascertained: it is said to be a native of Tartary, and also to have been found wild in Sicily and Russia. It has long been cultivated in almost every country of Europe.

The Hordeum Distichon is an annual; the ear or spike is flat, with a double row of defective or male florets on each flat side, and a single row of fertile florets on each ridge; the valves of the calyx are linear, and one-half shorter than the corolla, or inner chaff, which terminates in a straight, serrated awn, or beard, sixteen times its own length. When ripe the husk is coriaceous, angular, and continues close about the grain, which is ovate, grooved, and angular.

Pearl barley is prepared by grinding off the husk of the rough grain, by means of machinery, it is afterwards rounded in a mill, which at the same time gives the granules a polish. In this state, barley consists almost solely of amylaceous matter; it has little or no taste, and is inodorous.

QUALITIES, &c. According to Fourcroy and Vauquelin, barley contains starch, sugar, a small portion of unctuous coagulable oil, an animal substance partly soluble in water and partly forming glutinous flocculi, phosphate of lime and magnesia, silica, iron, and a little acetic acid.

ECONOMICAL USES, &c. Barley is never used medicinally in substance; as an article of food it is less used than it was formerly,

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[*] Fig. *c.* the flower, magnified.

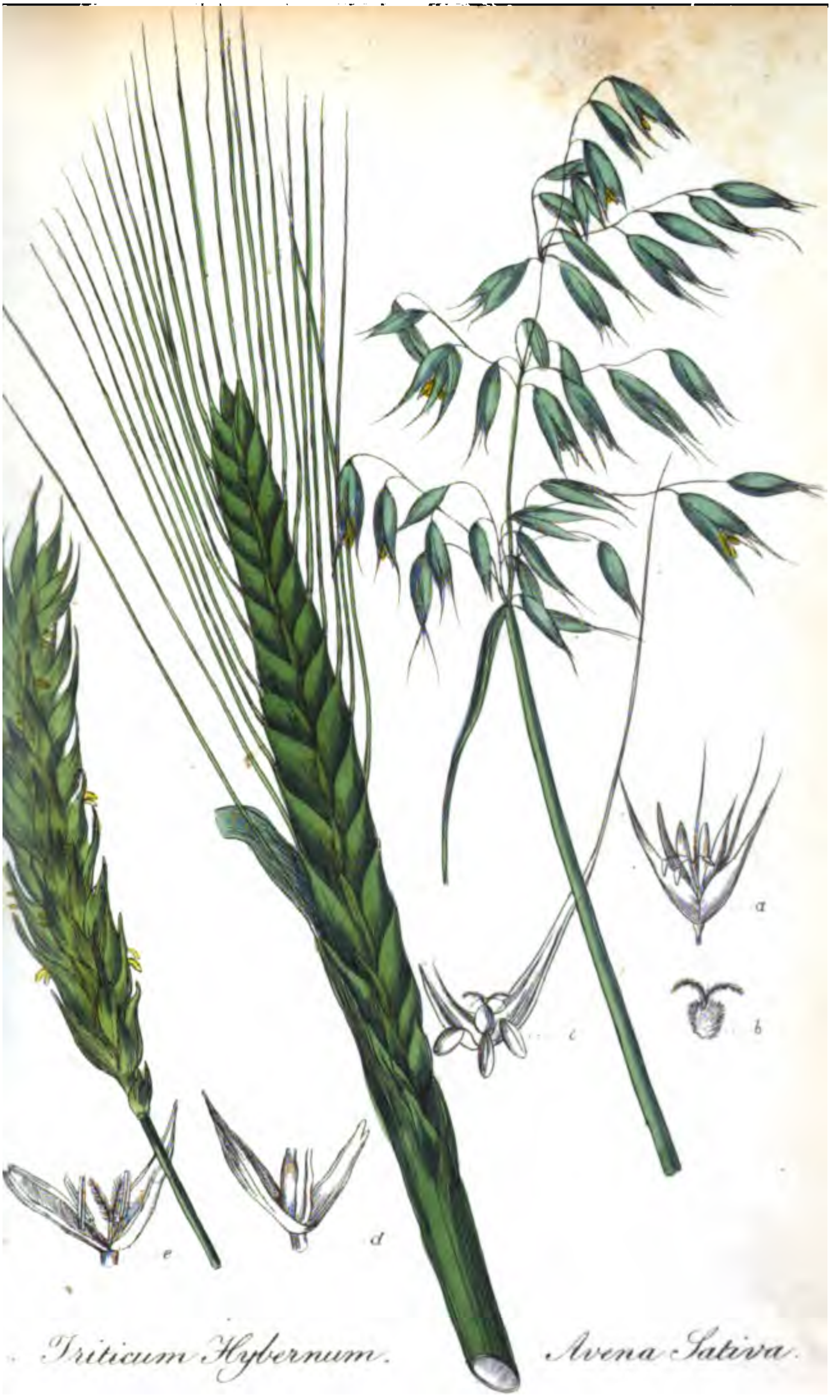
[illegible]

[illegible] prepared by [illegible]

[illegible] phosphate of lime [illegible]

[illegible] of [illegible]

[illegible]



Hordeum Distichon.

G. Spratt del

Printed by G. E. Madeley, Wa

but large quantities of this grain are cultivated for the purpose of converting into malt, for making beer, and for the distillation of ardent spirit. Pearl barley when boiled forms a nourishing article of diet, and a decoction of it is much used as a diluent drink in febrile and acute diseases, and when acidulated, is preferable to most others.

Off.	The Seeds.
Off. Pp.	Decoctum Hordei, L. E. D.
	——— Hordei Compositum, L. D.

◆

TRITICUM HYBERNUM.

Winter Wheat.[*]

Class TRIANDRIA.—*Order* MONOGYNIA.

Nat. Ord. GRAMINA.

GEN. CHAR. *Calyx* two-valved, solitary, subtriflorous. *Flower* somewhat obtuse.

SPEC. CHAR. *Calyx* four-flowered, tumid, smooth, imbricated, with little or no awns.

THE native country of this valuable plant is entirely unknown, but it has been thought, from the nature and habit of wheat, that it might have been originally an inhabitant of Asia; however that may be, it appears pretty certain that its cultivation in Europe commenced in Sicily, and spread from thence to the southern parts, and as far north as 62°, beyond which it will not vegetate. Several varieties of this grain are cultivated in Britain, but the winter or lammas wheat is the most valuable and esteemed, as affording the finest kind of flour.

The root of lammas wheat consists of many downy fibres;[†] the stems are jointed, from three to four feet high, and terminated by long spikes, with the grain lodged in four rows, and imbricate; the chaff or calyx consists of two concave, oblong, keeled, smooth, nearly equal valves, the outer terminated by very short awns;* they contain from three to four florets, three of which are usually productive; the outer valve of the corolla is concave and pointed; the inner one flat, blunt, and two-toothed; the filaments are capillary, and bear linear, forked anthers; the germen is turbinate, bearing a short style, and feathery stigmas; the seed is ovate, translucent, with a narrow channel along the upper side.

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[*] Fig. *d.* the germen and calyx, magnified. *e.* The flower, expanded and magnified.

[†] This plant has two sets of roots, one set proceeding directly from the seed, and the other from what is called the corona of the plant, about two inches above the first: the latter do not shoot till spring time, and collect more nutriment than the seminal roots.

Chemical Properties, &c. of Flour. Flour, or the farinaceous part of the seed, is separated from the husk or bran (after the operation of grinding) by means of sieves of various degrees of fineness. The flour constitutes more than two-thirds the weight of the seed. Flour when good is nearly inodorous and insipid. Water in which flour has been macerated acquires a sweetish taste, and an opaline colour, and affords precipitates with infusion of galls and the strong acids. According to Vogel, the constituents of flour are in 100 parts:— gluten 24, saccharine gum 5, fecula 68, albumen 1.50. It is the presence of gluten which characterizes wheat flour; and on the due admixture of it with the constituents depends the superiority of wheat flour for making bread.† Bread is made by working the flour into paste with water, a quantity of some ferment, such as yeast, and a little muriate of soda, (common salt) to render it sapid, allowing the paste to stand until a certain degree of fermentation has taken place, and then baking it in an oven, heated to about 488°. During the fermentation, a quantity of gas is formed; and as it is prevented from escaping by the toughness of the paste, and dilated by the heat of the oven, the bread is rendered light and spongy. In this process, the nature of the constituents of the flour is altered, for we are not able to obtain either gluten or starch from bread.

Medical Properties and Uses. Wheaten bread is one of the most important articles of diet, but requires no particular notice in this place: as a remedial agent, it is chiefly employed for making cataplasms, and giving form to more active medicines. When toasted and infused in water, the liquor forms an excellent drink in febrile diseases, and debility of the digestive organs.

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* The short awns distinguish the lammas from the spring wheat, (Triticum Sativum) which has awns three inches long. By some, spring and winter wheat are considered as varieties only, not as distinct species.

† We are told by M. Taddei, that Guiaic is a test of the presence of gluten, by striking it with a blue colour; therefore when flour exhibits this colour when rubbed with guiaic and a few drops of vinegar, it may be pronounced good: that is, that the whole of its constituents are entire, particularly the gluten, which is most susceptible of decomposition.

Off. Wheat Flour. Starch.*

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PIPER CUBEBA.

Cubebs.

For *Class, Order, Nat. Ord.* and GEN. CHAR, See PIPER NIGRUM.

SPEC. CHAR. *Stem* jointed, flexuous. *Leaves* oblong, entire, petioled.

THIS species of Piper is a native of Java, where it is called *Cumac*; it grows in great luxuriance in the woods near Tuntang: it is also a native of Batavia, Guinea, and the Isle of France. It is a smooth shrub. In the younger trees the branches are long, creeping, and rooting: in the older they are flexuose and tetragonous; the leaves are from an inch to an inch and a half in length, mostly oblong or cordate, entire and supported on channelled footstalks, half an inch in length; the flowers are produced in solitary spikes; the fruit is a berry, growing in clusters on short peduncles, and resembles black pepper in size. Cubebs are exported from Java to all parts of Europe, and come to this country packed in cases.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Cubebs have a strong aromatic odour, and a hot, pungent, spicy taste; when chewed they heat the mouth, but leave a cool sensation on the palate. According to the analysis of Vauquelin, cubebs contain a thick volatile oil of a reddish colour, a resin, resembling that of copaiva, a coloured resin in small quantity, extractive, and some saline substances. The watery infusion is of a reddish colour, cloudy, with the odour and flavour of the drug; its colour is not altered by sulphate of iron, but a precipitate falls. The powdered berries should be kept in close stopped bottles, as it quickly looses its active properties if exposed to the atmosphere.

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* For the chemical properties and manufacture of starch, we must refer our readers to the London Dispensatory, pp. 598 and 599.

MEDICAL PROPERTIES AND USES. Cubebs are diuretic and aperient, and are used by the Indian practitioners as a grateful stomachic and carminative;[*] we are told the Arabs also use them in seasoning their food.[†] They have been chiefly used in this country for the cure of gonorrhœa, in which they moderate the inflammation and discharge, and in the majority of cases cut short the disease in a shorter time than any medicine we know of. We are told by Mr. Jeffrey, that even when they fail, he found the symptoms afterwards yield readily to the balsam of copaiva. Cubebs have also been given with success in leucorrhœa, and in cases of inflammation of the mucous membrane of the intestinal canal.

In some constitutions they are apt to nauseate, and also to increase the action of the arterial system, and to excite head-ache and giddiness. Cubebs are generally administered in the form of powder, in doses of from one scruple to one or two drachms, three or four times a day; they may also be given in the form of tincture, prepared by digesting three ounces of the bruised seed in one pint of rectified spirit; of which tincture one tea-spoonful may be taken in any convenient vehicle three times a day.

Off. Cubebs.

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MYRRH.

THIS substance is the product of a non-descript tree; and, as Dr. Ainslie very justly observes, "it is a reproach to the science of medicine, that a tree which produces this gum resin, has not yet been satisfactorily ascertained;" more especially when we reflect that this substance has been used, both as a perfume and medicine, for upwards of two thousand years. The best Myrrh is said to be brought from Troglodytitia, a province of Abyssinia, on the borders of the Red Sea; but what we receive comes from the East Indies, and is said to be the product of a tree growing in Arabia Felix. According to Bruce, the tree which produces this substance resembles the Acacia Vera, both in the leaf and the bark. Hence he conjectures it to be a species of Mimosa,[*] and that it grows behind Azab, along the coast towards the Straits of Babelmandel. It appears to have been known both to Dioscorides and Pliny; and we are told that Alexander's army found vast numbers of Myrrh trees growing in the territory of the Gadrossi.[†] Modern botanists, however, appear to be totally unacquainted with the tree; but we trust, that through the exertions of the Medico-Botanical Society of London, this desideratum in botanical knowledge will, ere long, be satisfactorily made known.

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[*] Ainslie's Materia Indica, vol. i. p. 98.

[†] Martyn's Gard. Dict. Art. Piper.

QUALITIES, &c. This gum resin, when pure, is in the form of tears, of a reddish-yellow colour, brittle, pellucid, shining, and of an unctuous feel. The taste is bitter and aromatic, with a peculiarly strong odour. It is partially soluble both in water and alcohol, and in a less proportion in sulphuric ether. According to Braconnot, 100 parts of Myrrh consist of 23 resin and 77 gum.[‡] Neumann obtained from 7680 parts of Myrrh, 6000 watery extract, 720 alcoholic and 180 volatile oil; and inversely, 2400 alcoholic, and 4200 watery. Myrrh is soluble in alkalies, forming with them tenacious fluids.

MEDICAL PROPERTIES, &c. Myrrh is tonic and stimulating; in moderate doses it promotes diaphoresis, and the fluid secretions in general, and proves serviceable in many diseases arising from inactivity of the system. It is thought to act especially upon the uterine system; hence it is generally prescribed (and with success) in amenorrhœa, chlorosis, &c. As a topical remedy, the spirituous solution is often applied to vitiated ulcers; and, diluted with water, it is used as a gargle to ulcers of the throat, and as a lotion in a spongy state of the gums. Myrrh may be exhibited in substance, in powder, or made up in pills, in doses of ten to sixty grains; or dissolved in water, or in the form of the diluted tincture.

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[*] Dr. A. Duncan, Junior, observes, that all the Mimosas with which we are acquainted furnish a pure gum, not a gum resin, and observes that Forskahl's opinion that it is the product of the *Amyris Kataf* is more probable.—*Edinburgh New Disp.* 11*th ed.*

[†] Vide Rooke's Arrian, vol. ii. pp. 115, 180.

[‡] Annales de Chimie, lxviii. 52.

Off. The Gum Resin.
Off. Pp. Tinctura Myrrhæ, L. E. D.

It also forms one of the ingredients in several of the compound medicines of the Pharmacopœias.

KINO.

In commerce there appears to be several varieties of this drug. The London college considers the best sort of Kino as the product of an African plant, a species of Pterocarpus (Erinacea), a native of Senegal. The Edinburgh college, however, has inserted Kino as the inspissated juice of the Eucalyptus Resinifera brown gum-tree of Botany Bay; and the Dublin college (on the authority of Dr. Roxburgh) have named the Butea Frondosa as the tree which *yields the* officinal Kino. Besides these, it appears there are several other plants which produce this substance.* Hence it appears, that the product of several different trees have, at various periods, been imported into this country under the specific name of Kino; and that the chemical properties of these various kinds vary considerably.†

Medical Properties and Uses. Kino is a powerful astringent; hence it is sometimes employed in obstinate chronic diarrhœas and dysenteries, and also in uterine and intestinal hemorrhages, fluor albus, and leucorrhæa, and other diseases arising from laxity of the solids. Externally it is applied as a styptic to check hemorrhages from wounds or ulcers, and to diminish the sanious discharge from ill-conditioned ulcers. It may be given in substance, in doses of from ten to thirty grains; or in the form of tincture, or the watery infusion: of the former, one drachm may be taken several times a day, and from one to two ounces of the latter.

Off, Kino.
Off. Pp. Tinctura Kino, L. E. D.

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* Vide Edin. Disp. 11th ed. p. 379. Thomson's Lond. Disp. 4th ed. p. 507.

† Want of room will not allow us to enter into the chemical properties of Kino; we must, therefore, refer our readers to the London Dispensatory, by A. T. Thomson, where this subject is treated at length.

SAGAPENUM.

THIS gum resin is a concrete juice, and imported into this country from Alexandria, Smyrna, and Aleppo. The plant which furnishes this substance has never been correctly ascertained. Willdenow supposes it to be the product of the Ferula Persica: the identical plant which Dr. Hope describes as furnishing the gum assafœtida. Dioscorides mentions this substance as the juice of a Ferula growing in Media; hence there is reason to suppose that Willdenow's supposition will, on further botanical researches, prove well founded.

SENSIBLE QUALITIES, &c. Sagapenum is met with either in agglutinated large masses, or in distinct tears, outwardly of a brownish yellow colour, internally paler, somewhat translucent, and breaking with a horny fracture; it grows soft on being handled, and sticks to the fingers; melts at a low heat, and burns with a white flame and crackling noise; its taste is hot, somewhat bitter, and nauseous; its smell is disagreeable and alliaceous. It is soluble in proof spirit, and partially so in alcohol, and water. By distillation with water, it yields a small portion of volatile oil. Its constituents, according to Pelletier, are 31.94 gum, 54.26 resin, 0.40 acidulous malate of lime, 11.80 volatile oil, and 0.60 of a peculiar matter.

MEDICAL PROPERTIES AND USES. The virtues of Sagapenum are somewhat similar to those of galbanum and assafœtida, (but in an inferior degree) and may be employed in the same diseases; we therefore refer our readers to those articles.

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AMMONIACUM.

Ammoniac, a gum resin.

The plant which furnishes this substance, has never been described by any person who has seen it growing in its native soil, with the exception of Mr. Jackson, whose authority cannot be wholly depended upon. On the authority of Willdenow, the London and Edinburgh colleges refer the production of this gum to the Heracleum Gummiferum of that learned botanist;[*] but as the plant which Willdenow describes was raised by him from a seed found in the Ammoniacum of the shops, there is considerable doubt if it be really the plant which produces the gum ammoniacum; more especially as Willdenow could not obtain any of the gum resin from it. Mr. Jackson, in his account of Morocco, gives the following account of the production of this gum: "*Ammoniacum*, called *Feshook* in Arabic, is produced from a plant similar to the European fennel, but much larger. In most of the plains of the interior, and particularly about El-araiche, and M'Sharrah Rumellah, it grows ten feet high. The gum ammoniac is procured by incisions in the branches, which when pricked, emit a lacteous glutinous juice, which being hardened by the heat of the sun, falls to the ground, and mixes with the red earth below; hence the reason that gum ammoniac of Barbary does not suit the London market. It might however, with a little trouble, be procured perfectly pure. It is remarkable that neither bird nor beast is seen where this plant grows, the vulture only excepted. It is however attacked by a beetle, which perforates the plant with its horn, and the juice runs out at the wound."

The Ammoniacum usually met with in the London markets, is brought from the East Indies, and comes packed in chests or cases.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Ammoniacum has a nauseous, sweetish taste, followed by a bitter one, with a smell somewhat like that of galbanum. It softens by heat, but is not fusible; when thrown upon live coals, it burns away in a flame; it is partly soluble in water, forming with it a milky liquor, and also in vinegar: upon standing, the resinous part precipitates. It is soluble in alcohol, forming a transparent liquor, which on the addition of water becomes milky. Alcohol distilled from it, arose unchanged, but water acquires a sweetish taste, and the smell of the ammoniac. According to Braconnot, it is composed of 70.0 parts of resin, 18.4 gum, 4.4 glutinous matter, and 6.0 water, in 100 parts, 1.2 parts being lost in the process.*

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[*] The Heracleum Gummiferum belongs to the *Class* PENTANDRIA, *Order* DYGINIA, *Nat. Ord.* UMBELLATÆ. GEN. CHAR. *Fruit* elliptical, emarginate, compressed, striated, margined. *Corolla* inflex, emarginate. *Involucre* caducous. This plant rises three feet in height: the branches are opposite and divaricated; radical leaves a span long, cordate, three-lobed, toothed, pubescent on the under surface, petioled; stem leaves opposite, somewhat cordate, three or four inches long, toothed, and stand upon sheathing petioles; the flowers are produced in large, many-rayed umbels; the marginal flowers are hermaphrodite, the central hermaphrodite without the germen; the margin of the calyx is obsolete; the corolla of the marginal flowers is pentapetalous and unequal; the corolla of the central is pentapetalous and equal; the filaments support roundish anthers; the germen in the marginal flower is inferior, oblong; styles two, inserted into a glandular body; the stigmas capitate.—Spec. Plant. Willd. i. 1421.

MEDICAL PROPERTIES AND USES. Ammoniacum is stimulant, and somewhat deobstruent, expectorant, and antispasmodic; in large doses it is purgative, excites perspiration, and increases the flow of urine; hence it is prescribed with advantage in a variety of diseases, viz. to promote expectoration in some pulmonary complaints, in dropsy to promote the flow of urine, as a deobstruent in visceral obstruction, hysteria, and chlorosis, and in obstinate colic, proceeding from viscid matter lodged in the intestines, ammoniacum has produced good effects, after aperients and carminatives have failed. As a topical remedy, it is applied in the form of plaister as a discutient to scirrhous tumours, white swellings, &c. Ammoniacum may be taken in doses of from ten to thirty grains, either in substance or in solution. It is often given in combination with squills, ipecacuanha, antimony, myrrh, iron, or bitters, according to the effects we wish to promote.

Off.	The Gum Resin.
Off. Pp.	Emplastrum Ammoniaci, L.
	———— Ammoniaci cum Hydrargyro, L.
	Mistura Ammoniaci, L. D.

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† Annales de Chim. lxviii. 60.

LIST
OF
POISONOUS PLANTS.

Those marked • are natives of Britain, and those † are in the work.

† Aconitum	*Napellus*	Monk's-hood.
•Actea	*Spicata*	Bane-berries.
•Æthusa	*Cynapium*	Fool's-parsley.
•Anemone	*Pulsatilla*	Pasque-flower.
•Anagallis	*Avensis*	Pimpernal.
Angustura	*Pseudo-ferruginea*	Ferruginous Angustura.
†•Arum	*Maculatum*	Wake-robin.
•Aristolochia	*Clematitis.*	Birth-wort.
†•Atropa	*Belladonna*	Deadly Night-shade.
•Bryonia	*Dioica*	Bryony.
† Cephaëlis	*Ipecacuanna*	Ipecacuan.
•Chelidonium	*Majus*	Celandine.
•Cicuta	*Virosa*	Water Hemlock.
•Clematis	*Vitalba*	Virgin's Bower.
†•Colchicum	*Autumnale*	Meadow Saffron.
† Convolvulus	*Scammonia*	Scammony.
†•Conium	*Maculatum*	Hemlock.
† Croton	*Tiglium*	Purging Croton.
† Cucumis	*Colocynthis*	Bitter Apple.
†•Daphne	*Mezereum*	Mezereon.
•———	*Laureola*	Spurge Laurel.
†•Datura	*Stramonium.*	Thorn Apple.
† Delphinium	*Staphisagria*	Stavesacre.
†•Digitalis	*Purpurea*	Fox-glove.
† Euphorbia	*Officinarum*	Euphorbium.
Ervum	*Eervilia*	Lentil.
Fritillaria	*Imperialis*	Crown Imperial.
† Gratiola	*Officinalis*	Hedge Hyssop.
†•Helleborus	*Fœtidus*	Bear's-foot.
†•———	*Niger*	Black Hellebore.
• Hydrocotile	*Vulgaris*	Marsh Penny-wort.
†•Hyoscyamus	*Niger*	Henbane.
Jatropha	*Curcas*	Indian Nut.

† Juniperus	*Sabina*	Savine.
†•Lactuca	*Virosa*	Strong-scented Lettuce.
† Laurus	*Camphora*	Camphor Tree.
———	*Cerasus*	Common Laurel.
Lobelia	*Syphilitica*	Cardinal Flower.
•Lolium	*Temulentum*	Darnel.
Menispermum	*Cocculus*	Cocculus Indicus.
† Momordica	*Elaterium*	Wild Cucumber.
•Narcissus	*Pseudo-Narcissus*	Daffodil.
† Nicotiana	*Tabacum*	Tobacco.
•Œnanthe	*Crocata*	Hemlock Drop-wort.
†•Papaver	*Somniferum*	White Poppy.
•Paris	*Quadrifolia*	Herb Paris.
•Pedicularis	*Palustris*	Louse-wort.
•Ranunculus	*Acris*	Butter-cup.
•———	*Sceleratus*	Water Crow-foot.
•———	*Flammula*	Lesser Spear-wort.
† Rhododendron	*Crysanthemum*	Yellow Rhododendron.
†•Rhus	*Toxicodendron*	Poison Oak.
† Ricinus	*Communis*	Palma Christi.
† Ruta	*Graveolens*	Rue.
•Sedum	*Acre*	Wall Pepper.
Secale	*Cornutum*	Spurred Rye.
•Sempervivum	*Tectorum*	House-leek.
† Scilla	*Maritima*	Squill.
†•Solanum	*Dulcamara*	Woody Night-shade.
† Stalagmitis	*Cambogioides*	Gamboge.
† Strychnos	*Nux Vomica*	Crow Fig.
† Veratrum	*Album*	White Hellebore.
•Voila	*Tricola*	Heart's-ease.

POISONOUS MUSHROOMS.

Agaricus	*Muscarius*	Fly Agaric.
———	*Piperatus*	Pepper Agaric.
———	*Necator*	Deadly Agaric.
———	*Bulbosa*	Bulbous Agaric.
———	*Chantarellus*	Champignon.

LIST
OF
INDIGENOUS PLANTS

NOT FIGURED IN THE WORK.

Convallaria	*Polygonatum*	Solomon's-seal	Astringent.
———	*Majalis*	Lily of the Valley	Aperient.
Ruscus	*Aculeatus*	Butcher's-broom	Aperient.
Tamus	*Communis*	Black Bryony	Diuretic.
Narcissus	*Poeticus*	Narcissus	Emetic.
———	*Pseudo-Narcissus*	Daffodil	Emetic.
Iris	*Pseud-Acorus*	Yellow Water Iris	Cathartic.
Sagittaria	*Sagittifolia*	Arrow-head	Acrid.
Butomus	*Umbellatus*	Flowering-rush	Aperient.
Hydrocharis	*Morsus-ranæ*	Frog-bit	Astringent.
Alnus	*Glutinosa*	Common Alder	Astringent.
Betula	*Alba*	Common Birch	Aperient.
Fagus	*Sylvatica*	Common Beech	Lithontriptic.
Urtica	*Pilulifera*	Roman Nettle	Diuretic, Astringent
———	*Dioica*	Great Nettle	Diuretic.
———	*Urens*	Little Nettle	Diuretic, Astringent
Mercurialis	*Annua*	Annual Mercury	Cathartic, Emetic.
Euphorbia	*Lathyris*	Caper Spurge	Cathartic, Emetic.
———	*Peplis*	Purple Sea Spurge	Cathartic, Acrid.
———	*Characias*	Red Shrubby Spurge.	Cathartic.
Buxus	*Sempervirens*	Box-tree	Sudorific.
Aristolochia	*Clematitis*	Common Birth-wort	Emmenagogue.
Hippophaë	*Rhamnoides*	Sallow Thorn	Aperient.
Polygonum	*Aviculare*	Knot-grass	Astringent.
———	*Convolvulus*	Black Bindweed	Nutritive.
Atriplex	*Angustifolia*	Narrow-leaved Orache	Emetic.
Chenopodium	*Bonus Henricus*	English Mercury	Aperient.
Salsosa	*Kali*	Prickly Salt-wort	Deobstruent.
Anagallis	*Arvensis*	Scarlet Pimpernal	Acrid.
Primula	*Vulgaris*	Cowslip	Anodyne.

Mentha	*Odorata*	Bergamot Mint	Stomachic.
———	*Arvensis*	Corn Mint	Diuretic.
Melittis	*Melissophyllum*	Bastard Balm	Diuretic.
Lamium	*Album*	Dead Nettle	Diaphoretic.
Thymus	*Acinos*	Basil Thyme	Astringent.
———	*Nepeta*	Lesser Calamint	Cephalic.
———	*Calamintha*	Calamint	Cephalic.
Ajuga	*Reptans*	Common Bugle	Tonic.
Antirrhinum	*Majus*	Toad Flax	Diuretic.
Veronica	*Arvensis*	Wall Speedwell	Diaphoretic.
Pedicularis	*Palustris*	Louse-wort	Acrid.
Verbascum	*Thapsus*	Great Mullein	Anodyne.
———	*Blattaria*	Moth Mullein	Anodyne.
———	*Nigrum*	Black Mullein	Astringent.
Lithospermum	*Officinale*	Gromwell	Diuretic.
Convolvulus	*Sepium*	Great Bindweed	Cathartic.
———	*Arvensis*	Small Bindweed	Cathartic.
Polemonium	*Cœruleum*	Jacob's-ladder	Astringent.
Cynoglossum	*Officinale*	Hound's-tongue	Astringent.
Gentiana	*Pneumonanthe*	Marsh Gentian	Bitter.
Nuphar	*Pumila*	Dwarf Water Lily	Antiscorbutic.
Vinca	*Major*	Greater Periwinkle	Astringent.
Ligustrum	*Vulgare*	Privet	Astringent.
Fraxinus	*Excelsior*	Common Ash	Febrifuge.
Vaccinium	*Myrtillus*	Whortle-berry	Antiscorbutic.
Bryonia	*Dioica*	Red-berried Bryony	Cathartic.
Cichorium	*Intybus*	Wild Succory	Aperient.
Carlina	*Vulgaris*	Common Carline Thistle	Diuretic.
Senecio	*Vulgaris*	Groundsel	Aperient.
Achillea	*Millefolium*	Yarrow, or Milfoil	Astringent.
Galium	*Aparine*	Goose-grass	Vulnary.
Hedera	*Helix*	Ivy	Aperient.
Apium	*Graveolens*	Parsley, or Wild Celery	Diuretic.
Chœrophyllum	*Sylvestre*	Wild Cicely or Chervil	Diuretic.
———	*Sativum*	Garden Cicely	Diuretic.
Eryngium	*Campestre*	Field Eringo	Aperient.
Sedum	*Acre*	Wall Pepper	Emetic.
Epilobium	*Angustifolium*	Rose-bay Willow-herb	Intoxicating.
Alchemilla	*Alpina*	Alpine Lady's Mantle	Astringent.
Potentilla	*Reptans*	Creeping Polentilla	Febrifuge.
Spiræa	*Filipendula*	Common Drop-wort	Astringent.
Prunus	*Spinosa*	Sloe	Febrifuge.
Ulex	*Europæus*	Furze	Diuretic.

Astragalus	***Glycyphyllos***	**Sweet Milk-vetch**	**Demulcent.**
Trifolium	***Pratense***	**Common Melilot**	**Laxative.**
Euonymus	***Europæus***	**Common Spindle Tree**	**Emetic.**
Ilex	***Æquifolium***	**Common Holly**	**Cathartic.**
Fumaria	***Officinalis***	**Common Fumitory**	**Aperient.**
Sisymbrium	***Officinale***	**Hedge Mustard**	**Pectoral.**
Nasturtium	***Officinale***	**Water Cress**	**Antiscorbutic.**
Lepidium	***Latifolium***	**Pepper-wort**	**Sialogogue.**
Impatiens	***Noli-me-tangere***	**Touch-me-not**	**Diuretic.**
Viola	***Tricolor***	**Heart's-ease**	**Emetic.**
Geranium	***Pratense***	**Meadow Crane's-bill**	**Astringent.**
Cistus	***Helianthemum***	**Dwarf Cistus**	**Astringent.**
Soponaria	***Officinalis***	**Common Soap-wort**	**Aperient.**
Malva	***Moschata***	**Musk Mallow**	**Emollient.**
Clematis	***Vitalba***	**Common Traveller's-joy**	**Bark Caustic.**
Thalictrum	***Majus***	**Greater Meadow Rue**	**Stomachic.**
Anemone	***Pulsatilla***	**Pasque-flower**	**Acrid.**
Pæonia	***Officinalis***	**Piony**	**Emmenagogue.**
Adonis	***Autumnalis***	**Pheasant's-eye**	**Astringent.**
Aquilegia	***Vulgaris***	**Common Columbine**	**Diuretic.**

A TABULAR INDEX,

Shewing at one view the Generic and Specific Name of each Plant, the Class and Order to which it belongs in the Sexual System of Linnæus, the Natural Order of Linnæus and Jussieu, its Medicinal Properties, and the Volume and Page in which the Description is given.

Generic Name.	Specific or Trivial Name.	Vol.	Page.	CLASS.	ORDER.	NATURAL ORDER.		MEDICAL PROPERTIES.
						Linnæus.	Jussieu.	
Amygdalus	Communis	1	1	Icosandria	Monogynia	Pomaceæ	Drupaceæ	Demulcent.
Aconitum	Napellus	1	18	Polyandria	Trigynia	Multisiliquæ	Ranunculaceæ	Narcotic.
Althæa	Officinalis	1	26	Monadelphia	Polyandria	Columnaceæ	Malvaceæ	Demulcent.
Asarum	Europæum	1	45	Dodecandria	Monogynia	Sarmentaceæ	Aristolochiæ	Errhine.
Acorus	Calamus	1	58	Hexandria	—	Piperitæ	Aroideæ	Aromatic.
Anthemis	Nobilis	1	73	Syngenesia	Polygamia Superflua	Compositæ Discoideæ	Corymbiferæ	Tonic, Bitter.
—	Pyrethrum	2	32	—	—	—	—	Sialogogue.
Artemisia	Absinthium	1	96	—	—	—	—	Bitter.
—	Maritima	1	98	—	—	—	—	Bitter.
—	Santonica	1	99	—	—	—	—	Vermifuge.
—	Abrotanum	1	100	—	—	—	—	Bitter.
Æsculus	Hippocastanum	1	113	Heptandria	Monogynia	Trihilatæ	Acera	Astringent, Bitter.
Arbutus	Uva Ursi	1	115	Decandria	—	Bicornes	Ericineæ	Astringent.
Atropa	Belladonna	1	132	Pentandria	—	Luridæ	Solanaceæ	Narcotic.
Acacia	Vera	1	176	Polygamia	Monœcia	Lomentaceæ	Leguminosæ	Demulcent.
—	Catechu	1	181	—	—	—	—	Astringent.
Arum	Maculatum	1	218	Monœcia	Polyandria	Piperitæ	Aroideæ	Stimulant.
Anchusa	Tinctoria	1	220	Pentandria	Monogynia	Asperifoliæ	Boragineæ	Used for colouring.
Angelica	Archangelica	2	7	—	Digynia	Umbellatæ	Umbellatæ	Aromatic.
Agrimonia	Eupatoria	2	66	Dodecandria	—	Senticosæ	Rosaceæ	Astringent.
Anethum	Graveolens	2	70	Pentandria	—	Umbellatæ	Umbellatæ	Aromatic.
—	Fœniculum	2	72	—	—	—	—	Aromatic.
Aspidium	Filix Mas	2	93	Cryptogamia	Filices	Filices		Anthelmintic.
Aloe	Socotrina	2	96	Hexandria	Monogynia	Coronariæ	Asphodeli	Cathartic.

Generic Name.	Specific or Trivial Name.	Vol.	Page.	CLASS.	ORDER.	NATURAL ORDER.		MEDICAL PROPERTIES.
						Linnæus.	Jussieu.	
Aloe	Vulgaris	2	97	Hexandria	Monogynia	Coronariæ	Asphodeli	Cathartic.
Arnica	Montana	2	106	Syngenesia	Polygamia Superflua	Compositæ Discoideæ	Corymbiferæ	Stimulant.
Arctium	Lappa	2	152	——	—— Æqualis	—— Capitatæ	Cinarocephalæ	Astringent.
Allium	Sativum	2	153	Hexandria	Monogynia	Spathaceæ	Asphodeli	Stimulant.
——	Porrum	2	155	——	——	——	——	Expectorant, Diuretic.
——	Cepa	2	156	——	——	——	——	Expectorant, Stimulant.
Aristolochia	Serpentaria	2	243	Gynandria	Hexandria	Sarmentaceæ	Aristolochiæ	Stimulant.
Amyris	Gileadensis	2	245	Octandria	Monogynia		Terebintaceæ	Stimulant.
——	Elemifera	2	247	——	——		——	Stimulant.
Astragalus	Verus	2	278	Diadelphia	Decandria	Papilionaceæ		Demulcent.
Avena	Sativa	2	306	Triandria	Digynia	Gramina		Nutritious, Demulcent.
Ammoniacum		2	315					Stimulant.
Boswellia	Serrata	2	196	Decandria	Monogynia			Stimulant.
Bubon	Galbanum	2	203	Pentandria	Digynia	Umbellatæ		Antispasmodic.
Bonplandia	Trifoliata	2	252	——	Monogynia	Simarubeæ	Quassiæ	Tonic.
Boletus	Ignarius	2	273	Cryptogamia	Fungi	Fungi	Fungi	Styptic.
Croton	Tiglium	1	80	Monœcia	Monadelphia	Tricoccæ	Euphorbiæ	Cathartic.
——	Eluteria	2	280	——	——	——	——	Stimulant.
Colchicum	Autumnale	1	47	Hexandria	Trigynia	Spathaceæ	Junci	Narcotic.
Citrus	Aurantium	1	58	Polyadelphia	Icosandria	Pomaceæ	Aurantiæ	Refrigerant.
——	Medica	1	187	——	——	——	——	Antiseptic.
Crocus	Sativus	1	70	Triandria	Monogynia	Ensatæ	Irideæ	Stimulant, Cordial.
Capsicum	Annuum	1	91	Pentandria	——	Luridæ	Solaneæ	Acrid, Stimulant.
Cassia	Senna	1	128	Decandria	——	Lomentaceæ	Leguminosæ	Cathartic.
——	Fistula	2	206		——	——	——	Aperient.
Conium	Maculatum	1	148	Pentandria	Digynia	Umbellatæ	Umbelliferæ	Narcotic.
Cephaëlis	Ipecacuanha	1	148	——	Monogynia	Aggregatæ	Rubiaceæ	Emetic.
Convolvulus	Scammonia	1	157	——	——	Campanaceæ	Convolvuli	Cathartic.
——	Jalapa	1	202	——	——	——	——	Cathartic.
Carum	Carui	1	191	Pentandria	Digynia	Umbelliferæ	Umbelliferæ	Cordial.

Cochlearia	Officinalis	1	226	Tetradynamia	Siliculosa	Siliquosæ	Cruciferæ	Stimulant, Diuretic.
————	Armoracia	1	228	————	————	————	————	Stimulant, Diuretic.
Cuminum	Cyminum	2	45	Pentandria	Digynia	Umbellatæ	Umbellatæ	Aromatic.
Coriandrum	Sativum	2	55	————	————	————	————	Carminative.
Chironea	Centaurium	2	68	————	Monogynia	Rosaceæ	Gentianæ	Tonic.
Canella	Alba	2	91	Dodecandria	————	Oleraceæ	Meliaceæ	Aromatic.
Cardamine	Pratensis	2	109	Tetradynamia	Siliquosa	Siliquosæ	Siliquosæ	Antispasmodic.
Curcuma	Zedoaria	2	121	Monandria	Monogynia	Scitamineæ	Drymyrrhizæ	Aromatic.
Centaurea	Benedicta	2	175	Syngenesia	Polygamia Frustranea	Compositæ Capitatæ	Cinarocephalæ	Bitter, Tonic.
[illegible]	Colocynthis	2	187	Monœcia	Syngenesia	Cucurbitaceæ		Cathartic.
Copaifera	Officinalis	2	201	Decandria	Monogynia	Dumosæ	Leguminosæ	Diuretic, Tonic.
Cinchona		2	281	Pentandria	————	Contortæ	Rubiaceæ	Tonic, Febrifuge.
Cocos	Butyracea	2	305	Monœcia	Hexandria	Palmæ		Emollient.
Daphne	Mezereum	1	18	Octandria	Monogynia	Veprecułæ	Thymeleæ	Stimulant.
Digitalis	Purpurea	1	33	Didynamia	Angiospermia	Luridæ	Scrophulariæ	Narcotic, Diuretic.
Delphinium	Staphisagria	1	86	Polyandria	Trigynia	Multisiliquæ	Ranunculaceæ	Anthelmintic, Narcotic.
Daucus	Carota	1	104	Pentandria	Digynia	Umbellatæ	Umbelliferæ	Diuretic.
Datura	Stramonium	1	125	————	Monogynia	Luridæ	Solaneæ	Narcotic.
Dianthus	Caryophyllus	1	155	Decandria	Digynia	Caryophylleæ	Caryophylleæ	Aromatic, Cordial.
Dolichos	Pruriens	2	199	Diadelphia	Decandria	Papilionaceæ	Leguminosæ	Vermifuge.
Dryobalanops	Camphora	2	215	Polyandria	Monogynia		Guttiferæ	Stimulant, Narcotic.
Dorstenia	Contrajerva	2	229	Monœcia	Diandria	Scabridæ	Urticæ	Tonic, Stimulant.
Eugenia	Caryophyllata	2	48	Icosandria	Monogynia	Hesperidiæ	Myrti	Aromatic.
Eryngium	Maritimum	2	158	Pentandria	Digynia	Umbellatæ		Demulcent.
Euphorbia	Officinarum	2	224	Dodecandria	Trigynia	Tricoccæ	Euphorbia	Cathartic, Emetic, &c.
Fraxinus	Ornus	1	205	Polygamia	Diœcia	Sepiariæ	Jasmineæ	Aperient.
Fucus	Vesiculosus	2	128	Cryptogamia	Algæ	Algæ		Deobstruent.
Ficus	Carica	2	170	Polygamia	Triœcia	Scabridæ	Urticæ	Aperient.
Ferula	Assafœtida	2	270	Pentandria	Digynia	Umbellatæ		Antispasmodic.
Guaiacum	Officinale	1	139	Decandria	Monogynia	Gruinales	Rutaceæ	Stimulant.
Gratiola	Officinalis	1	174	Diandria	————	Personatæ	Scrophulariæ	Cathartic, Diuretic.
Geum	Urbanum	1	193	Icosandria	Polygynia	Senticosæ	Rosaceæ	Astringent.
Gentiana	Lutea	1	222	Pentandria	Digynia	Rotaceæ	Gentianæ	Tonic.

Generic Name.	Specific or Trivial Name.	Vol.	Page.	CLASS.	ORDER.	NATURAL ORDER.		MEDICAL PROPERTIES.
						Linnæus.	Jussieu.	
Geoffroya	Inermis	2	172	Diadelphia	Decandria	Papilionaceæ	Leguminosæ	Anthelmintic.
Glycyrrhiza	Glabra	2	177	——	——	——	——	Demulcent.
Hyoscyamus	Niger	1	22	Pentandria	Monogynia	Solaneæ	Solaneæ	Narcotic.
Helleborus	Niger	1	62	Polyandria	Polygynia	Multisiliquæ	Ranunculaceæ	Cathartic, Narcotic.
——	Fœtidus	1	65	——	——	——	——	Cathartic, Emetic.
Humulus	Lupulus	2	80	Diœcia	Pentandria	Scabridæ	Urticæ	Anodyne.
Hæmatoxylum	Campechianum	2	139	Decandria	Monogynia	Lomentaceæ	Leguminosæ	Astringent.
Hyssopus	Officinalis	2	250	Didynamia	Gymnospermia	Verticillatæ	Labiatæ	Aromatic.
Hordeum	Distichon	2	308	Triandria	Digynia	Gramina		Nutritious.
Inula	Helenium	1	106	Syngenesia	Polygamia Superflua	Compositæ Discoideæ	Corymbiferæ	Tonic.
Iris	Florentina	1	161	Triandria	Monogynia	Ensatæ	Irideæ	Cathartic.
Juniperus	Sabina	2	190	Diœcia	Monadelphia	Coniferæ		Stimulant, Emmenagogue.
——	Communis	2	193	——	——	——		Diuretic.
——	Lycia	2	195	——	——	——		Masticatory.
Krameria	Triandra	2	184	Tetrandria	Monogynia			Astringent.
Kino		2	314					Astringent.
Lactuca	Virosa	1	87	Syngenesia	Polygamia Æqualis	Compositæ Semiflosculosæ	Cichoraceæ	Narcotic.
Linum	Usitatissimum	1	41	Pentandria	Pentagynia	Gruinales	Linaceæ	Demulcent.
——	Catharticum	1	109	——	——	——	——	Aperient.
Leontodon	Taraxacum	1	59	Syngenesia	Polygamia Æqualis	Compositæ Semiflosculosæ	Cichoraceæ	Diuretic, Tonic.
Lavandula	Spica	1	94	Didynamia	Gymnospermia	Verticillatæ	Labiatæ	Aromatic.
Laurus	Cinnamomum	2	34	Enneandria	Monogynia	Oleraceæ	Lauri	Aromatic.
——	Nobilis	2	187	——	——	——	——	Narcotic, Carminative.
——	Sassafras	2	164	——	——	——	——	Aromatic.
——	Camphora	2	217	——	——	——	——	Narcotic, Stimulant.
Lichen	Islandicus	2	179	Cryptogamia	Algæ	Algæ		Demulcent, Bitter.
——	Rocella	2	182	——	——	——		Dye.

Lythrum	Salicaria	2	292	Dodecandria	Monogynia	Calycanthemæ	Salicariæ	Astringent, Tonic.
Malva	Sylvestris	1	15	Monadelphia	Polyandria	Columniferæ	Malvaceæ	Demulcent.
Momordica	Elaterium	1	27	Monœcia	Syngenesia	Cucurbitaceæ	Cucurbitaceæ	Cathartic.
Mentha	Viridis	1	168	Didynamia	Gymnospermia	Verticillatæ	Labiatæ	Aromatic, Carminative.
——	Piperita	1	164	——	——	——	——	Aromatic, Carminative.
——	Pulegium	1	166	——	——	——	——	Aromatic, Carminative.
Marrubium	Vulgare	1	167	——	——	——	——	Tonic, Diuretic.
Melaleuca	Cajuputi	1	214	Polyadelphia	Icosandria	Hesperideæ	Myrti	Stimulant.
Morus	Nigra	1	225	Monœcia	Tetrandria	Scabridæ	Urticæ	Demulcent.
Menyanthes	Trifoliata	2	5	Pentandria	Monogynia	Preciæ	Lysymachiæ	Tonic, Diuretic.
Myristica	Moschata	2	74	Diœcia	Monadelphia	Lauri	Lauri	Stimulant.
Matonia	Cardamomum	2	115	Monandria	Monogynia	Scitamineæ	Cannæ	Carminative, Stomachic.
Myrtus	Pimenta	2	130	Icosandria	——	Hesperidæ	Myrti	Stimulant, Tonic.
Myroxylon	Peruiferum	2	166	Decandria	——	Lomentaceæ	Leguminosæ	Tonic, Stimulant.
Menispermum	Palmatum	2	233	Diœcia	Dodecandria	Menispermeæ		Antiseptic, Tonic.
Melissa	Officinalis	2	249	Didynamia	Gymnospermia	Verticillatæ	Labiatæ	Stomachic.
Myrrh		2	312					Tonic, Stimulating.
Nicotiana	Tabacum	1	195	Pentandria	Monogynia	Luridæ	Solaneæ	Narcotic.
Oxalis	Acetosella	1	44	Decandria	Pentagynia	Gruinales	Geraniæ	Antiseptic, Refrigerant.
Olea	Europœa	1	67	Diandria	Monogynia	Sepiariæ	Jasmineæ	Demulcent.
Origanum	Vulgare	1	172	Didynamia	Gymnospermia	Verticillatæ	Labiatæ	Tonic.
——	Majorana	1	173	——	——	——	——	Tonic.
Papaver	Rhœas	1	12	Polyandria	Monogynia	Rhœades	Papaveraceæ	Demulcent.
——	Somniferum	1	77	——	——	——	——	Narcotic.
Polygonum	Bistorta	1	75	Octandria	Trigynia	Oleraceæ	Polygoniæ	Astringent.
Punica	Granatum	1	101	Icosandria	Monogynia	Pomaceæ	Myrtæ	Astringent, Anthelmintic.
Pyrus	Cydonia	2	10	——	Pentagynia	——	Rosaceæ	Demulcent.
Pastinaca	Opoponax	2	12	Pentandria	Digynia	Umbellatæ	Umbelliferæ	Antispasmodic.
Pinus	Sylvestris	2	14	Monœcia	Monadelphia	Coniferæ	Coniferæ	Stimulant, Cathartic, Anthelmintic, Diuretic; externally rubefacient.
——	Larix	2	22	——	——	——	——	
——	Balsamea	2	25	——	——	——	——	
——	Abies	2	26	——	——	——	——	
——	Picea	2	28	——	——	——	——	

Generic Name.	Specific or Trivial Name.	Vol.	Page.	CLASS.	ORDER.	NATURAL ORDER.		MEDICAL PROPERTIES.
						Linnæus.	Jussieu.	
Pimpinella	Anisum	2	43	Pentandria	Digynia	Umbellatæ	Umbellatæ	Carminative.
Polygala	Senega	2	62	Diadelphia	Octandria	Lomentaceæ	Pediculares	Stimulating.
Prunus	Domestica	2	65	Icosandria	Monogynia	Pomaceæ	Rosaceæ	Aperient.
Pistachia	Terebinthus	2	102	Diœcia	Pentandria	Amentaceæ	Terebintaceæ	Stimulant, Diuretic.
——	Lentiscus	2	104	——	——	——	——	Astringent, Diuretic.
Piper	Nigrum	2	160	Diandria	Trigynia	Piperitæ	Urticæ	Stimulant, Carminative.
——	Longum	2	163	——	——	——	——	Stimulant, Carminative.
——	Cubeba	2	311	——	——	——	——	Diuretic, Aperient.
Pterocarpus	Santalinus	2	268	Diadelphia	Decandria	Papilionaceæ	——	Used for colouring.
Quassia	Simaruba	2	255	Decandria	Monogynia	Gruinales	Magnoliæ	Tonic, Bitter.
——	Excelsa	2	258	——	——	——	——	Tonic, Bitter.
Quercus	Robur	2	265	Monœcia	Polyandria	Amentaceæ		Astringent.
——	Infectoria	2	267	——	——	——		Astringent.
Rosa	Canina	1	17	Icosandria	Polyginia	Senticosæ	Rosaceæ	Demulcent.
——	Centifolia	2	38	——	——	——	——	Laxative.
——	Gallica	2	41	——	——	——	——	Astringent, Tonic.
Rosmarinus	Officinalis	1	56	Diandria	Monogynia	Verticillatæ	Labiatæ	Stimulant.
Ruta	Graveolens	1	89	Decandria	——	Multisiliquæ	Rutaceæ	Antispasmodic.
Rheum	Palmatum	1	119	Enneandria	Trigynia	Oleraceæ	Polygoneæ	Stomachic, Purgative.
Ricinus	Communis	2	1	Monœcia	Monadelphia	Tricoccæ	Euphorbiæ	Cathartic.
Rhododendron	Chrysanthum	2	57	Decandria	Monogynia	Bicornes	Rhododendra	Stimulant, Narcotic.
Rumex	Acetosa	2	112	Hexandria	Trigynia	Oleraceæ	Polygoneæ	Diuretic.
——	Aquaticus	2	113	——	——	——	——	Astringent.
Rhamnus	Catharticus	2	128	Pentandria	Monogynia	Dumosæ	Rhamni	Cathartic.
Rubia	Tinctorum	2	146	Tetrandria	——	Stellatæ	Rubiaceæ	Emmenagogue.
Rhus	Toxicodendron	2	308	Pentandria	Digynia	Dumosæ	Terebintaceæ	Stimulant, Narcotic.
Sinapis	Alba	1	6	Tetradynamia	Siliquosa	Siliquosæ	Sisymbriæ	Stimulant.
Solanum	Dulcamara	1	8	Pentandria	Monogynia	Solanaceæ	Solanaceæ	Diuretic, Narcotic.
Spigelia	Marilandica	1	51	——	——	Stellatæ	Gentianæ	Anthelmintic, Purgative.

Salvia	Officinalis	1	110	Diandria	Monogynia	Verticillatæ	Labiatæ	Stimulant.
Sambucus	Nigra	1	117	Pentandria	Trigynia	Dumosæ	Caprifoliaceæ	Aperient.
Spartium	Scoparium	1	147	Diadelphia	Decandria	Papilionaceæ	Papilionaceæ	Diuretic.
Salix	Fragilis	1	169	Diœcia	Diandria	Amentaceæ	Amentaceæ	Tonic, Astringent.
Styrax	Officinale	1	184	Decandria	Monogynia	Bicornes	Guaiacinæ	Stimulant.
———	Benzoin	2	148	———	———	———	———	Expectorant.
Swietenia	Febrifuga	2	86	———	———	Trihilatæ	Meliæ	Astringent, Tonic.
Solidago	Virgaurea	2	89	Syngenesia	Polygamia Superflua	Compositæ Discoideæ	Corymbiferæ	Astringent.
Scilla	Maritima	2	134	Hexandria	Monogynia	Coronariæ	Asphodeli	Diuretic.
Smilax	Sarsaparilla	2	211	Diœcia	Hexandria	Sarmentaceæ	Asparagi	Demulcent.
Sium	Nodiflorum	2	227	Pentandria	Digynia	Umbellatæ		Antiscorbutic.
Saccharum	Officinarum	2	259	Triandria	———	Gramina		Laxative.
Scrophularia	Nodosa	2	274	Didynamia	Angiospermia	Personatæ	Scrophulariæ	Diuretic.
Stalagmitis	Cambogioides	2	275	Polygamia	Monœcia	Tricoccæ		Cathartic.
Sagapenum		2	315					Antispasmodic.
Strychnos	Nux Vomica	2	294	Pentandria	Monogynia	Luridæ	Apocineæ	Anodyne, Tonic.
Tussilago	Farfara	1	112	Syngenesia	Polygamia	Compositæ Discoideæ	Corymbiferæ	Demulcent.
Tormentilla	Erecta	1	137	Icosandria	Polygynia	Senticosæ	Rosaceæ	Astringent.
Tamarindus	Indica	2	52	Monadelphia	Triandria	Lomentaceæ	Leguminosæ	Laxative.
Tanacetum	Vulgare	2	132	Syngenesia	Polygamia Superflua	Compositæ Discoideæ	Corymbiferæ	Tonic, Anthelmintic.
Teucrium	Marum	2	208	Didynamia	Gymnospermia	Verticillatæ	Labiatæ	Errhine.
———	Chamædrys	2	210	———	———	———	———	Tonic, Emmenagogue.
Triticum	Hybernum	2	309	Triandria	Monogynia	Gramina		Nutritious.
Viola	Odorata	1	160	Pentandria	Monogynia	Campanaceæ	Cisti	Demulcent.
Valeriana	Officinalis	1	210	Triandria	———	Aggregatæ	Dipsaceæ	Antispasmodic.
Veronica	Beccabunga	1	213	Diandria	———	Personatæ	Pedicularis	Antiscorbutic.
Veratrum	Album	2	141	Polygamia	Monœcia	Coronariæ	Junci	Cathartic, Emetic.
Vitis	Vinifera	2	235	Pentandria	Monogynia	Hederaceæ	Vitis	Antiseptic, Cooling.
Ulmus	Campestris	2	46	Pentandria	Digynia	Scabridæ	Amentaceæ	Diuretic.
Wintera	Aromatica	2	301	Polyandria	Tetragynia	Oleraceæ	Magnoliaceæ	Stomachic.
Zingiber	Officinale	2	59	Monandria	Monogynia	Scitamineæ	Cannæ	Stimulant.

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